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THE OCCURRENCE OF LEAD IN THE EGG OF THE DOMESTIC HEN.¹

PART I.

By WILFRID B. S. BISHOP, B.Sc. (Sydney),
Bosch Cancer Research Fellow.

[From the Department of Physiology, University of Sydney.]

In an examination of tissues for the occurrence of lead, eggs of the domestic hen were examined in some detail. In all the eggs analysed lead was found, the range being as follows:

Shell, 0.1 to 1.6 milligrammes per 100 grammes of wet material.

Yolk, 0.2 to 1.0 milligramme per 100 grammes of wet material.

White, 0.12 to 0.48 milligramme per 100 grammes of wet material.

During incubation it was observed that lead was absorbed by the embryo, so that at full time the chick had absorbed all the lead in the yolk and white. For the embryos examined, the lead content varied from 0.05 to 0.50 milligramme per 100 grammes of wet material, the ages of the embryos ranging from eleven to twenty-one days. It is hoped, later, to present results showing the absorption of lead throughout incubation, together with the other inorganic constituents present.

Uranium and lithium have also been found in all the eggs so far examined. Uranium has not been previously reported as occurring in animal tissue. Lithium was reported by Hermann⁽¹¹⁾ to occur in almost all the human organs, but no reference to its occurrence in eggs has been forthcoming.

This paper presents a detailed account of the method used for estimating lead in hen eggs and chicken embryos, with some notes on the accuracy attained.

SOME EARLY METHODS OF ESTIMATION.

The methods available for the estimation of lead in organic material differ essentially only in the manner in which the material is treated to isolate the lead which is then estimated by any one of many standard methods. The following abstracts show how widely the methods vary; it is not within the scope of this paper to review them critically, as this is being done elsewhere.

Barthe⁽³⁾ destroys the organic matter by Denigès's method, using a mixture of nitric and sulphuric acids, but without the addition of potassium permanganate. The resulting sulphuric acid solution is diluted with water and a one-third volume of ethyl alcohol is added. The precipitate is decanted on to a porcelain filter, washed with a mixture of alcohol, water and sulphuric acid, dissolved in ammonium tartrate and the lead precipitated as the sulphide with sulphuretted hydrogen. The precipitate is filtered, washed with sulphuretted

hydrogen water, dissolved in nitric acid and the lead precipitated as lead sulphate.

Gusserow and Hoppe⁽⁹⁾ remove organic matter by using a mixture of hydrochloric acid and potassium chlorate. The filtrate is then electrolysed, the electrolysis being continued until the cathode is constant in weight.

Meillère⁽¹²⁾ destroys the organic matter in the presence of two to five cubic centimetres of 20% copper sulphate solution, the solution then being acidified with 1% nitric acid and saturated with sulphuretted hydrogen. After being centrifuged and washed the precipitate is dissolved in ten cubic centimetres of nitric acid, then diluted to fifty cubic centimetres and boiled until free of nitrous fumes. The solution is then diluted to one hundred cubic centimetres and electrolysed. After electrolysis the precipitated lead is dissolved from the electrodes with acidulated water and the lead estimated in the residue on evaporating to dryness.

Froboese⁽⁷⁾ employs a more complex method than any of the foregoing, without gaining any apparent advantages. The dried material is ashed in a nickel crucible at the lowest possible temperature. Faeces ash well. Other material is moistened with a dilute solution of sodium nitrate, dried and reheated. This is preferable to using solid nitrate as given by Denis and Minot.⁽¹³⁾ The ash is washed into a beaker, nitric acid added and boiled until all the ash (with the exception of some carbon) has gone into solution. The mixture is cooled and filtered and the filter is ashed in a platinum crucible with sodium carbonate and sodium nitrate. The melt is dissolved in water, precipitated iron is filtered off, the melt is then acidified with nitric acid and added to the first filtrate. The bulked filtrates are neutralized with sodium hydroxide, one drop of hydrochloric acid is added and sulphuretted hydrogen is passed into the solution.

THE ESTIMATION OF LEAD.

The methods for the estimation of lead are numerous. One is limited, however, to those methods capable of estimating with certainty amounts of lead of the order of 0.1 milligramme and less. Most of the methods described in the literature are concerned only with the estimation of lead in relatively large amounts. Gravimetric methods could not be considered; there thus remained titrimetric and colorimetric methods.

Of the titrimetric methods two new methods must be mentioned. Geillmann and Höltje⁽⁸⁾ employ a revised iodometric method for amounts from 5 milligrammes to 0.1 milligramme of lead, with an error of 0.01 milligramme of lead. This method could not be used successfully as the lower limit of 0.10 milligramme was not sufficiently delicate. For values above 0.5 milligramme the method was all that the authors claimed for it.

Burstein⁽⁶⁾ applied a titrimetric reaction first used by Fajans for the estimation of potassium chloride by titration with silver nitrate solution in the presence of an acid dyestuff. The solutions used

¹ This work was carried out under the control of the Cancer Research Committee of the University of Sydney and with the aid of the Cancer Research and Treatment Fund.

by Burstein were 0.098 normal lead nitrate and potassium ferrocyanide. The reaction is not definite enough at the dilution of the solutions required for the present work, that is, $\frac{1}{200}$ normal, and so could not be applied. It was thus evident that a colorimetric method would have to be used and of those already described the following had to be considered.

Budden and Hardy⁽⁵⁾ used a Nessler method, employing an acetic acid solution. If copper is present, interference is prevented by the addition of cyanide; if much iron is present, it is precipitated as Berlin blue; tin, if present, is oxidized with hydrogen peroxide. The method is very sensitive to changes of concentration of the various reagents used. The observed colour must be compared immediately it is developed, as it rapidly fades.

Muir⁽¹⁴⁾ compared the colour of the unknown lead sulphide with that developed by a known lead solution.

Harcourt⁽¹⁰⁾ used an alkaline sulphide solution, adding sugar as a protective colloid and compared the colour so developed with an artificial standard colour prepared from copper, cobalt and ferrous sulphates.

Of various colour reactions given by lead, most depend on an oxidizing reaction, whereby the colour of a leuco-base is developed. Two such reactions will be noticed, one of which, it has been claimed, has been developed to give quantitative results. Wildenstein⁽²⁰⁾ states that lead salts give a violet colouration with hæmatoxylin solutions. The reaction is given by lead at a dilution of one part of lead in 500,000 parts of solution and also by copper salts. This reaction could not be developed to give accurate quantitative results. The other reaction, first mentioned by Arnold and Mentzel⁽¹⁾ and subsequently developed by Trillat⁽¹⁹⁾ depends on the blue colour developed by lead in the presence of the reagent, tetramethyldiaminodiphenylmethane, but gave erroneous results due to the method of preparation of the reagent.

The whole method has recently been placed on an accurate basis by Necke, Klostermann and Schmidt⁽¹⁵⁾ who claim to have developed Trillat's reaction into an accurate method for the estimation of lead. They give an outline of the method and some figures representing results obtained for lead in organic material, the limit of the method being 0.002 milligramme of lead. However, in the papers so far available, beyond stating that the error in Trillat's reaction is due to the method of preparation of the reagent and that:

Die Trillatsche Vorschrift (19 above) führte hier aber trotz viele Mühe nicht zum Ziele: sie gab dauernd die grössten Fehlerschläge, namentlich stark positive Ausschläge bei blinden Kontrollen. Es gelang endlich nach jahrlanger Arbeit, den Gang der Mikroanalyse so weit zu bessern, dass befriedigende Resultate erzielt wurden.

No mention is made of the precautions adopted to attain this end, nor of the method for the preparation of the reagent. So far the author has not been able to prepare a specimen of the reagent

(tetramethyldiaminodiphenylmethane) which does not give an intense colour in blank controls.

There thus remained the Nessler method, in one of its many modifications.

THE METHOD CHOSEN.

The method finally adopted presents nothing new: the colour developed by lead in alkaline sulphide solutions is compared with a standard lead solution of known concentration.

The precautions to be observed as regards acidity and time of precipitation of the sulphide, stability of the lead sulphide and losses involved in the method have been exhaustively treated by Avery, Hemingway and Anderson.⁽²⁾

Of previous workers who have used the colour of lead sulphide for the estimation of lead, may be mentioned Thresh⁽¹⁷⁾ who used an acetic acid solution of the lead salts, but does not eliminate the possibility of the effect of copper salts; and Siegfried and Pozzi⁽¹⁸⁾ who used a nitric acid solution of the lead salts, stating that the presence of iron and manganese did not affect the results obtained. Copper is not mentioned. The method is no more sensitive than that which follows, and attains no greater accuracy at a concentration of 0.05 milligramme of lead, namely 25%, than does the present author. Both Thresh and Siegfried and Pozzi use gum arabic solution as a protective colloid.

Using the Nessler method in alkaline solutions, lead only must be present in the solution being compared. Alkaline solutions are to be preferred, because copper, bismuth, arsenic, antimony and tin all give coloured sulphides in acid solutions. The effect of traces of copper in alkaline sulphide solutions is nullified by the addition of potassium cyanide. The precise conditions are given by Avery, Hemingway and Anderson (*loco citato*). The method adopted for the estimation of lead in eggs of the domestic fowl and in chicken embryos, results of which will appear in later papers, is as follows:

The organic material is dried in a large hot air oven at 105° C. until a dry mass capable of being pulverized is obtained. This condition is never attained with egg yolks, owing to the high content of natural fats.

When dry the material is ashed in a silica basin, standing on quartz pebbles within another similar basin, the whole being surrounded by an iron flue and heated by a small Bunsen burner until a hard graphitic residue is obtained. By this means the material is ashed evenly, there being no excessive heating at the bottom of the basin which never exceeds a barely visible red heat. The hard ash, moistened with distilled water to prevent loss by dust, is ground in the silica basin with an agate pestle to a fine powder. The end of the pestle is rinsed with distilled water into the dish.

To the powdered ash are added ten cubic centimetres of concentrated hydrochloric acid (purified by distillation), for each fifty grammes of original wet material and the basin is placed on a hot water

bath for two hours. After this period ten to twenty cubic centimetres of distilled water are added, the ash is thoroughly stirred and the liquid in the basin is decanted through a filter paper into a glass evaporating basin. The ash is washed five times, ten cubic centimetres of hot distilled water being used for each wash, the filtrates are placed in the glass evaporating basin and evaporated to dryness.

To the ash in the basin is added a further amount of hydrochloric acid in the same proportion as before and the ash is heated for one hour on the water bath. The liquid is decanted through the filter into the same basin as before and the ash washed free of chlorides with hot distilled water. The combined filtrates are evaporated to dryness. The residue is dissolved in water, then made just acid to methyl orange with hydrochloric acid, diluted to twenty cubic centimetres, one drop of 2% copper acetate solution is added and sulphuretted hydrogen is passed into the solution for one quarter of an hour. This period is sufficient to precipitate all the lead present. The test tube is then stoppered and allowed to stand twenty-four hours.

The precipitate is rinsed into "Pyrex" glass centrifuge tubes (fifteen cubic centimetres capacity) with sulphuretted hydrogen water and centrifuged for fifteen minutes at three to four thousand revolutions per minute. The clear supernatant liquid is syphoned off and the precipitate washed with three cubic centimetres of sulphuretted hydrogen water and again centrifuged for fifteen minutes. This process is repeated four times.

The precipitate is dissolved in the tubes by adding one drop of concentrated nitric acid and warming on the water bath. Evaporate nearly to dryness and add one cubic centimetre of pure concentrated sulphuric acid. The tube is heated to strong fuming, cooled and four cubic centimetres of water-alcohol mixture (three to one) are added; the tube is allowed to stand overnight. The tubes are centrifuged for fifteen minutes, carrying down the lead sulphate. The precipitate, after the top liquid is syphoned off, is washed three times with five cubic centimetres of the following mixture: Alcohol (98%) thirty-two volumes, concentrated sulphuric acid, three volumes, water, sixty-five volumes; the centrifuge is used after each wash. The precipitate of lead sulphate in the tubes is then dissolved in five cubic centimetres of hot one in two ammonium acetate solution, cooled and Nesslerized as follows:

The solution is placed in a ten cubic centimetre graduated cylinder, one cubic centimetre of 10% potassium cyanide solution is added, one cubic centimetre of 0.880 ammonium hydroxide, two drops of 1% gum arabic solution and two drops of colourless sodium sulphide solution are added and the whole made up to ten cubic centimetres with distilled water. The comparison is then made with the following solution: Five cubic centimetres of one in two ammonium acetate solution, one cubic centimetre of 10% potassium cyanide solution, one cubic centimetre of 0.880 ammonium hydroxide, two

drops of 1% gum arabic solution, two drops of sodium sulphide solution and the whole is made up to nine cubic centimetres with distilled water. This solution must be quite colourless. Sufficient of the standard lead acetate solution is then added from a burette until the colour developed is the same as that of the unknown solution. The amount of lead standard solution added is read off from the burette, which should be graduated to read 0.05 cubic centimetre. The solutions are then placed in the cups of a Duboscq colorimeter and the final comparison made.

The standard lead solution is made from lead acetate and should contain approximately 0.1 milligramme of lead per cubic centimetre. This solution should be freshly prepared, as the value alters rapidly, as is noted later, unless at least 1% of free glacial acetic acid is added.

The following points should also be noted:

The method of ashing is important, as the whole of the material is thus as nearly as possible at the same low red heat, obviating dangers of loss of lead by local overheating. As lead is appreciably volatile at temperatures above 600° C., it is essential to char the organic matter below this temperature. If an electric muffle with accurate temperature control is available, it can be used for ashing the material: gas muffles are unsuitable as the temperature cannot be accurately controlled.

Lead only should be present in the final stage of comparison. This is achieved by washing the lead sulphate thoroughly with the mixture of alcohol, sulphuric acid and water. Any traces of copper which may remain, are prevented from interfering by the addition of potassium cyanide.

Lead in the Reagents.

The reagents and all apparatus, containers and the like must be as free as possible from lead, so that any addition from these sources can be allowed for. To this end all the reagents and containers were examined separately.

Containers.

The stock bottles were half gallon Winchesters. The smaller bottles were of the usual glass stoppered variety. All the bottles were boiled in 50% hydrochloric acid, using three separate baths, the bottles being rinsed with distilled water between each change. The final wash water was allowed to remain in the bottles for twenty-four hours. The bottles were then rinsed with freshly distilled water from an all-glass still until free from chlorides.

The bottles were then rinsed out with the hot reagents each one was finally to contain, and the lead estimated in the reagent and compared with a blank. After such treatment it was possible to reduce the extractable lead in the glass to less than 0.005 milligramme. In most instances there were no measurable differences between the blanks and the rinsings from the bottles.

Reagents.

The reagents used were the purest obtainable. Table I shows the reagents used and the treatment necessary for their purification.

TABLE I.

Reagent.	Amount of Reagent Used in Analysis.	Treatment.
1. Water	500 c.cms.	Redistilled from all-glass still.
2. Conc. HCl	15 c.cms.	Redistilled from all-glass still.
3. Conc. HNO ₃	0.2 c.c.m.	Redistilled from all-glass still.
4. Conc. H ₂ SO ₄	1 c.c.m.	Merck's pure. No treatment required.
5. Ammon. acetate	5 c.cms. of 1:2 solution	May & Baker's chemically pure. No treatment required.
6. Absolute alcohol	6 c.cms.	Merck's. No treatment required.
7. H ₂ S gas	—	From ferrous sulphide and 50% HCl.
8. Saturated H ₂ S water...	—	Gas washed by distilled water in a gas scrubber.
9. Sodium sulphide	0.2 c.c.m.	Detailed preparation later.
10. Lead acetate	Standard solution	Merck's pro analysi. No treatment required.

The use of sodium sulphide solution is preferable to ammonium sulphide as it keeps indefinitely when closely stoppered and has only a pale lemon yellow colour, invisible when diluted as used in the analysis.

The method of preparation is the same as that of A. Inhelder, as reported by Treadwell.⁽¹⁸⁾

The following details are for the preparation of approximately one hundred cubic centimetres of sodium sulphide solution. Thirty-three grammes of pure sodium hydroxide prepared from metallic sodium are dissolved in one hundred cubic centimetres of distilled water and divided into halves. One half is placed in a tall gas bubbler and a rapid stream of well washed sulphuretted hydrogen gas is passed into the solution. When there is no further increase in the volume of the solution (fifty cubic centimetres of sodium hydroxide solution should give approximately sixty cubic centimetres of sodium sulphide solution) the other half of the hydroxide solution is added. The resulting sodium sulphide solution is of a pale yellow colour.

If prepared from stick sodium hydroxide "purified from alcohol," the final solution is coloured a deep yellow or brown and is useless for lead estimation.

The standard lead acetate solution is prepared at intervals of one month. The solution used contained 0.10 milligramme of lead (approximately per cubic centimetre), the exact amount being determined by careful weighing. The addition of not less than 1% of free glacial acetic acid is necessary, if the solution is to be at all constant.

Filter Papers.

Avery Hemingway and Anderson (*loco citato*) state that filter papers are a source of lead contamination. They used J. Green's double washed Number 2 eleven centimetre papers: for four papers the amount of lead found was 0.015 milligramme.

In the present work only one filter paper was used, so that it might be expected that the amount of lead from this source would be negligible. Carl

Schleicher and Schüll nine centimetres (Number 595) filter papers were used throughout. The amount of lead in ten papers was found to be 0.005 milligramme or 0.0005 milligramme of lead per paper. This amount can obviously be neglected.

Apparatus.

For ashing the organic material "Vitreosil" silica basins were used. These were well boiled in 50% hydrochloric acid before being used and were then found to contain no extractable lead. These basins are ideal for ashing purposes, provided the ash contains no alkaline or easily fusible salts.

The glass-ware used consisted of "Pyrex" fifteen cubic centimetre centrifuge tubes, three inch "Duro" glass evaporating basins and an all glass wash-bottle. These were quite free from lead after treatment with 50% boiling hydrochloric acid.

Blanks.

One blank control is made with each series of estimations. Numerous blank estimations made with the foregoing apparatus and chemicals show an average value of 0.020 milligramme of lead for each experiment.

Controls.

As no information was available as to the accuracy of this method of lead estimation in organic material using a Duboscq colorimeter, the method has been critically reviewed.

Siegfried and Pozzi⁽¹⁶⁾ (*loco citato*) describe a method for the estimation of lead in tap-water, in which the estimation is made in a Duboscq colorimeter. The error given by them is 25% for 0.05 milligramme of lead, which is of the same order as that found by the present author for similar amounts. Siegfried and Pozzi appear to be the only workers who have employed a Duboscq colorimeter for the final colour comparison.

Duplicate Solutions.

It is necessary to know with what accuracy solutions can be duplicated. Solutions of the same strength were made as accurately as possible, being measured from a burette graduated in 0.05 cubic centimetres, the stock solution being lead acetate, one cubic centimetre of which contains about 0.1 milligramme lead, the amount being known exactly for any one solution.

Solutions containing 0.05 milligramme, 0.10 milligramme, 0.20 milligramme of lead were made up, thirty solutions in each group and the lead estimated in each of the thirty samples. For each result five readings were made on the colorimeter and from the average of these the result was calculated.

The Tables II, III and IV contain the results of such a series of duplication of solutions of lead concentrations most commonly encountered in this work.

It is shown that greater accuracy is obtained using solutions ranging from 0.1 milligramme to 0.2 milligramme of lead, the accuracy of a single

TABLE II.

Number.	Milligrammes of Lead Found.	Error.	
		Absolute.	Percentage.
1	0.055	+0.005	+10.0
2	0.049	-0.001	-2.0
3	0.048	-0.002	-4.0
4	0.056	+0.006	+12.0
5	0.056	+0.006	+12.0
6	0.054	+0.004	+8.0
7	0.046	-0.004	-8.0
8	0.051	+0.001	+2.0
9	0.048	-0.002	-4.0
10	0.045	-0.005	-10.0
11	0.047	-0.003	-6.0
12	0.055	+0.005	+10.0
13	0.054	+0.004	+8.0
14	0.046	-0.004	-8.0
15	0.053	+0.003	+6.0
16	0.044	-0.006	-12.0
17	0.056	+0.006	+12.0
18	0.052	+0.002	+4.0
19	0.046	-0.004	-8.0
20	0.055	+0.005	+10.0
21	0.046	-0.004	-8.0
22	0.045	-0.005	-10.0
23	0.053	+0.003	+6.0
24	0.047	-0.003	-6.0
25	0.055	+0.005	+10.0
26	0.052	+0.002	+4.0
27	0.044	-0.006	-12.0
28	0.046	-0.004	-8.0
29	0.055	+0.005	+10.0
30	0.048	-0.002	-4.0

The probable error of a single observation was $\pm 0.0\%$.

All solutions were made as accurately as possible and are supposed to contain 0.05 milligramme of lead. Standard 0.05 milligramme.

observation, calculated as will be shown later, rising from 6% for 0.05 milligramme to 2.3% for 0.10 milligramme and 2.0% for 0.20 milligramme.

These figures represent determinations of lead in known solutions, but the solutions are not treated in the usual way for the separation of lead. This explains the high accuracy of the determination of

TABLE III.

Number.	Milligrammes of Lead Found.	Error.	
		Absolute.	Percentage.
1	0.098	-0.002	-2.0
2	0.099	-0.001	-1.0
3	0.105	+0.005	+5.0
4	0.101	+0.001	+1.0
5	0.104	+0.004	+4.0
6	0.099	-0.001	-1.0
7	0.099	-0.001	-1.0
8	0.101	+0.001	+1.0
9	0.097	-0.003	-3.0
10	0.106	+0.006	+6.0
11	0.102	+0.002	+2.0
12	0.096	-0.004	-4.0
13	0.098	-0.002	-2.0
14	0.105	+0.005	+5.0
15	0.101	+0.001	+1.0
16	0.097	-0.003	-3.0
17	0.102	+0.002	+2.0
18	0.097	-0.003	-3.0
19	0.094	-0.006	-6.0
20	0.104	+0.004	+4.0
21	0.099	-0.001	-1.0
22	0.097	-0.003	-3.0
23	0.104	+0.004	+4.0
24	0.105	+0.005	+5.0
25	0.104	+0.004	+4.0
26	0.096	-0.006	-6.0
27	0.102	+0.002	+2.0
28	0.094	-0.006	-6.0
29	0.102	+0.002	+2.0
30	0.099	-0.001	-1.0

The probable error of one observation was $\pm 2.3\%$.

Standard Lead Solution contained 0.10 milligramme of lead.

TABLE IV.

Number.	Milligrammes of Lead Found.	Error.	
		Absolute.	Percentage.
1	0.198	-0.002	-1.0
2	0.212	+0.012	+6.0
3	0.208	+0.008	+4.0
4	0.204	+0.004	+2.0
5	0.199	-0.001	-0.5
6	0.200	—	0.0
7	0.190	-0.010	-5.0
8	0.191	-0.009	-4.5
9	0.198	-0.002	-1.0
10	0.193	-0.007	-3.6
11	0.196	-0.004	-2.0
12	0.201	+0.001	+0.5
13	0.204	+0.004	+2.0
14	0.202	+0.002	+1.0
15	0.210	+0.010	+5.0
16	0.196	-0.004	-2.0
17	0.196	-0.004	-2.0
18	0.203	+0.003	+1.5
19	0.204	+0.004	+2.0
20	0.198	-0.002	-1.0
21	0.196	-0.004	-2.0
22	0.210	+0.010	+5.0
23	0.199	-0.001	-0.5
24	0.209	+0.009	+4.5
25	0.196	-0.004	-2.0
26	0.201	+0.001	+0.5
27	0.194	-0.006	-3.0
28	0.205	+0.005	+2.5
29	0.211	+0.011	+5.5
30	0.197	-0.003	-1.5

The probable error of a single observation was $\pm 2.0\%$.

Standard Lead Solution contained 0.200 milligramme of lead.

lead of 0.05 milligramme. When, however, this amount has to be recovered and then estimated, the accuracy falls to about 24%.

In all estimations in this paper and those which follow, the lead concentration is always in the range of 0.1 milligramme to 0.2 milligramme. Thus when the lead in the unknown solution was expected to be less than 0.05 milligramme, sufficient standard solution was added to bring the lead value within the range given above, leading to an enhanced accuracy for the determination.

In making estimations colorimetrically it has been found essential to have the standard lead solution very close in value to that of the solution being estimated. This is clearly shown from results tabulated in Table V.

TABLE V.

No.	Lead in Milligrammes.		Error.		Lead in Milligrammes Found.	Error.	
	Calculated.	Found.	Absolute.	Percentage.		Absolute.	Percentage.
1	0.200	As Standard.			0.193	-0.007	3.5
2	0.210	0.212	+0.002	0.95	0.198	-0.012	5.7
3	0.220	0.220	0.0	0.0	0.210	-0.010	4.5
4	0.230	0.244	+0.014	6.5	0.214	-0.016	6.9
5	0.240	0.260	+0.020	8.4	0.234	-0.006	2.5
6	0.250	0.268	+0.018	7.2	Standard = 0.25 milligramme.		
7	0.260	0.272	+0.012	4.6	0.254	-0.006	2.3
8	0.270	0.304	+0.034	12.5	0.272	+0.002	0.74
9	0.280	0.300	+0.020	7.1	0.290	+0.010	3.57
10	0.290	0.302	+0.012	4.1	0.290	0.0	0.0
11	0.300	0.320	+0.020	6.6	0.292	-0.008	2.6

From Table V it is shown that when the mean value is adopted as the standard for comparison,

the greatest error is 6.9%, as compared with an error of 12.5% when the extreme value is used as the standard.

Hence in all estimations a trial estimation is first made and from this result the standard is obtained for the final comparison if the maximum accuracy attainable is required.

SMALLEST DIFFERENCE THAT CAN BE ESTIMATED.

It is essential to know the smallest difference that can be estimated accurately and also the accuracy of comparison of any two solutions. To this end a series of solutions ranging in concentration from 0.010 milligramme to 0.300 milligramme of lead and differing by 0.01 milligramme was prepared. These were estimated in groups of ten, the mean value of the group being used as standard. These results are given in Table VI from which it is at once

TABLE VI.

Number.	Lead in Milligrammes.		Error.	
	Calculated.	Found.	Absolute.	Percentage.
1	0.01	0.013	+0.003	+30.0
2	0.02	0.02	0	0
3	0.03	0.026	-0.004	-13.3
4	0.04	0.037	-0.003	-7.5
5	0.05	Standard.		
6	0.06		-0.005	-8.3
7	0.07		-0.005	-7.1
8	0.08		-0.005	-6.3
9	0.09		-0.003	-3.3
10	0.10	0.10	0	0
11	0.10	0.106	+0.006	+6.0
12	0.11	0.116	+0.006	+5.5
13	0.12	0.128	+0.008	+6.7
14	0.13	0.139	+0.009	+6.9
15	0.14	0.144	+0.004	+2.9
16	0.15	Standard.		
17	0.16		+0.006	+3.7
18	0.17		+0.004	+2.4
19	0.18		+0.006	+3.3
20	0.19		0	0
21	0.20	0.201	+0.001	+0.5
22	0.20	0.193	-0.007	-3.5
23	0.21	0.198	-0.012	-5.7
24	0.22	0.210	-0.010	-4.5
25	0.23	0.214	-0.016	-6.9
26	0.24	0.234	-0.006	-2.5
27	0.25	Standard.		
28	0.26		-0.006	-2.3
29	0.27		+0.002	+0.7
30	0.28		+0.010	+3.6
31	0.29		0	0
32	0.30	0.292	-0.008	-2.6

obvious that results involving amounts less than 0.05 milligramme of lead are unreliable and that the optimum concentration is not less than 0.10 milligramme of lead. The table also suggests that it would be impracticable to distinguish smaller differences than 0.01 milligramme of lead and to estimate them. This last point was clearly shown on comparing each solution from 0.01 milligramme to 0.10 milligramme of lead with the next solution higher in value to it in the series. This is given in Table VII and it is clear that amounts of lead less than 0.01 milligramme can be detected, but no smaller difference than this amount can be estimated with any degree of accuracy. Hence values of lead estimated to three places of decimals are misleading and are of value only for mathematical treatment.

TABLE VII.

Number.	Lead in Milligrammes.			Error.	
	Standard.	Calculated.	Found.	Absolute.	Percentage.
1	0.01	0.02	0.016	-0.004	-20.0
2	0.02	0.03	0.025	-0.005	-16.6
3	0.03	0.04	0.038	-0.002	-5.0
4	0.04	0.05	0.046	-0.004	-8.0
5	0.05	0.06	0.058	-0.002	-3.3
6	0.06	0.07	0.069	-0.001	-1.4
7	0.07	0.08	0.08	0	0
8	0.08	0.09	0.086	-0.004	-4.4
9	0.09	0.10	0.093	-0.007	-7.0

RECOVERY OF LEAD.

The recovery of lead from organic material had to be determined before the accuracy of the method could be arrived at.

The organic material under consideration was the egg of the common fowl. The recovery of lead was determined in the following manner. Six eggs from the same fowl were separated into shell, yolk and white, each part being intimately mixed. From each of the three parts were weighed out amounts equivalent to that in half an egg, there thus being obtained six pairs of equal parts (approximately) of shell, yolk and white. To each of the five pairs were added five different amounts of lead, the sixth pair being a control. Thus on analysis six duplicate results were obtained, five being with different amounts of lead. At the same time a duplicate blank determination was made. On subtracting from the results so obtained the results obtained for the control and blank, the recovery of added lead was determined. The results of such a series of determinations are given in Table VIII from which it is shown that the mean percentage recovery of added lead is as follows:

TABLE VIII.

Shell.			Yolk.			White.		
Lead in Milligrammes.		Percentage of Lead Recovered.	Lead in Milligrammes.		Percentage of Lead Recovered.	Lead in Milligrammes.		Percentage of Lead Recovered.
Added.	Re-covered.		Added.	Re-covered.		Added.	Re-covered.	
0.05	0.04	80.0	0.04	0.03	75.0	0.12	0.10	83.4
0.07	0.06	85.3	0.06	0.05	83.4	0.14	0.135	96.4
0.09	0.08	88.9	0.08	0.07	87.5	0.16	0.155	96.9
0.11	0.106	96.4	0.10	0.085	85.0	0.18	0.166	92.2
0.13	0.125	96.2	0.12	0.114	95.0	0.20	0.20	100.0
0.15	0.14	93.3	0.14	0.135	96.4	0.22	0.215	97.7
0.17	0.166	97.6	0.16	0.145	90.6	0.24	0.23	95.8
0.19	0.185	97.4	0.18	0.17	94.5	0.26	0.246	94.6

Mean percentage recovery of lead for shell = 90.7%, for yolk = 86.96%, for white = 95.45%.

ACCURACY OF THE METHOD.

If a series of determinations be made of the same amount of lead, the probable error of a single observation can be calculated from the formula

$$p_s = \pm 0.67 \sqrt{\sum d^2 / n}$$

where d represents the deviation of an observation from the mean of the series, n is the number of observations.

The probable error of the mean (p_n) is given by the equation

$$p_n = p_s / \sqrt{n}$$

These formulæ have been applied to the method given in the previous pages, although the number of observations has been too limited to admit of a rigorous mathematical treatment.

From the results given in Tables II, III and IV, for the duplication of known solutions and their estimation, using the above formulæ the following figures are obtained:

The probable error of a single observation:

$p_s = \pm 0.003$ milligramme for 0.05 milligramme lead, that is, 6.0% (Table II).

$p_s = \pm 0.002$ milligramme for 0.10 milligramme lead, that is 2.3% (Table III).

$p_s = \pm 0.004$ milligramme for 0.20 milligramme lead, that is, 2.0% (Table IV).

The probable error of the mean is calculated as:

$p_n = \pm 0.0005$ milligramme or 1.03% (Table I).

$p_n = \pm 0.0004$ milligramme or 0.40% (Table II).

$p_n = \pm 0.0007$ milligramme or 0.35% (Table III).

To determine the accuracy of the method recorded here as used for the estimation of lead in eggs, three series of experiments similar to those previously recorded were made. A known amount of lead, different for each of the three series, was added to portions of shell, yolk and white, under the conditions given in connexion with the previous experiments. Ten determinations of the lead in each series were then made. The result so obtained, less the lead originally present in the material *plus* that for a blank, represented the net lead recovered and hence the percentage recovery could be calculated. It is on this recovered lead that the true error is calculated. Thus if the probable error

TABLE IX.

Nature of Material.	Weight of Material Used (Grammes).	Original Lead-content (Milligrammes).	Added Lead (Milligrammes).	Blank. (Milligrammes).
Shell ...	3	0.015	0.05	0.015
Yolk ...	10	0.02	0.05	0.015
White ...	15	0.02	0.05	0.015

Number.	Total Lead Recovered (Milligrammes).			Net Lead Recovered (Milligrammes).			Mean Percentage Lead Recovered.
	Shell.	Yolk.	White.	Shell.	Yolk.	White.	
1	0.07	0.07	0.07	0.04	0.035	0.035	Shell = 74%
2	0.065	0.075	0.07	0.035	0.040	0.035	
3	0.07	0.07	0.075	0.04	0.035	0.04	
4	0.06	0.07	0.07	0.035	0.035	0.035	Yolk = 76%
5	0.07	0.07	0.08	0.04	0.035	0.045	
6	0.07	0.08	0.07	0.04	0.045	0.035	
7	0.06	0.07	0.08	0.035	0.035	0.045	White = 76%
8	0.06	0.07	0.07	0.035	0.035	0.035	
9	0.07	0.08	0.07	0.04	0.045	0.035	
10	0.07	0.07	0.07	0.04	0.035	0.035	

From the formula the probable error for shell was 6%, for yolk 5.5%, and for white 5.5%. The gross probable error was 8.1% for shell, 7.3% for yolk, and 7.3% for white on a recovery of 74% shell, 76% yolk, and 76% white.

TABLE X.

Nature of Material.	Weight of Material Used (Grammes).	Original Lead-content (Milligrammes).	Added Lead (Milligrammes).	Blank. (Milligrammes).
Shell ...	3	0.015	0.10	0.015
Yolk ...	10	0.02	0.10	0.015
White ...	15	0.02	0.10	0.015

Number.	Total Lead Recovered (Milligrammes).			Net Lead Recovered (Milligrammes).			Mean Percentage Lead Recovered.
	Shell.	Yolk.	White.	Shell.	Yolk.	White.	
1	0.12	0.125	0.125	0.09	0.09	0.09	Shell = 94%
2	0.125	0.13	0.12	0.095	0.095	0.085	
3	0.13	0.125	0.135	0.10	0.09	0.09	
4	0.13	0.13	0.13	0.10	0.095	0.095	Yolk = 90%
5	0.12	0.12	0.13	0.09	0.085	0.095	
6	0.12	0.13	0.12	0.09	0.095	0.085	
7	0.12	0.12	0.13	0.09	0.085	0.095	White = 91%
8	0.13	0.12	0.13	0.10	0.085	0.095	
9	0.12	0.12	0.12	0.09	0.085	0.085	
10	0.12	0.13	0.13	0.09	0.095	0.095	

From the formula the probable error for shell was 3.0%, for yolk 3.0%, and for white 2.9%. The gross probable error was 3.2% for shell, 3.3% for yolk, and 3.2% for white on a recovery of 94% shell, 90% yolk, and 91% white.

of one observation is 6.0% and the amount of lead recovered is only 74%, then the true error is $\frac{6 \times 100}{74}$ or 8.1%. The three series of experimental results are given in Tables IX, X, XI.

It is thus shown that the gross experimental error probable for one observation is least when the amount of lead present is of the order of 0.10 milligramme being then 3.3% for yolk and white and shell being 3.2%. This is in very close agreement with results obtained for pure lead solutions as given in Table III.

TABLE XI.

Nature of Material.	Weight of Material Used (Grammes).	Original Lead-content (Milligrammes).	Added Lead (Milligrammes).	Blank. (Milligrammes).
Shell ...	3	0.015	0.20	0.015
Yolk ...	10	0.020	0.20	0.015
White ...	15	0.02	0.20	0.015

Number.	Total Lead Recovered (Milligrammes).			Net Lead Recovered (Milligrammes).			Mean Percentage Lead Recovered.
	Shell.	Yolk.	White.	Shell.	Yolk.	White.	
1	0.22	0.22	0.21	0.19	0.185	0.175	Shell = 94%
2	0.21	0.23	0.22	0.18	0.195	0.185	
3	0.22	0.225	0.235	0.19	0.19	0.20	
4	0.215	0.22	0.22	0.185	0.185	0.185	Yolk = 93.5%
5	0.22	0.23	0.22	0.19	0.195	0.185	
6	0.22	0.215	0.23	0.19	0.18	0.195	
7	0.225	0.22	0.22	0.195	0.185	0.185	White = 93.5%
8	0.22	0.21	0.22	0.19	0.175	0.185	
9	0.21	0.225	0.225	0.18	0.19	0.19	
10	0.22	0.22	0.22	0.19	0.185	0.185	

From the formula the probable error was 5.0% for shell, 6.6% for yolk, and 6.3% for white. The gross probable error was 5.4% for shell, 7.1% for yolk, and 7.3% for white on a recovery of 94% shell, 93.5% yolk, and 93.5% white.

SOURCES OF LOSS.

The sources of loss using this method have been discussed in detail by Avery and others (*loco citato*) and will not be pursued further here.

It is considered that the technique herein described eliminates many possible losses due to filtration and transference of precipitates to different vessels, losses common to methods previously described, since the whole procedure is carried out in a fifteen cubic centimetres "Pyrex" centrifuge tube, after the initial precipitation of the lead sulphide.

Loss of lead due to heating has been reduced by means of the shielded method described; excellent results are also obtainable by the use of an accurately controlled electric muffle, gas muffles being difficult to control. The main source of loss still appears to be due to the solubility of lead sulphate in the alcoholic washings, as pointed out by Avery (*loco citato*).

STABILITY OF STANDARD LEAD SOLUTIONS.

When this work was commenced, it was found difficult to obtain results which agreed and were repeatable. This was at first ascribed to faulty technique, but as the errors became worse as time went on, it was decided to examine carefully all the solutions used and in particular the standard lead solutions. At the time no reference could be found in the literature as to the stability of lead solutions, so this point was dealt with in detail. Later, indeed, a paper was published dealing with the point by A. Bernhard.⁽⁴⁾

Bernhard reports that lead nitrate solutions containing from ten milligrammes to 0.4 milligramme of lead per cubic centimetre alter rapidly on keeping. Thus a ten milligramme per cubic centimetre solution decreased by 24.8% in 92 days; a one milligramme per cubic centimetre solution decreased 43% in 52 days; a 0.17 milligramme per cubic centimetre solution lost 38.5% in approximately 60 days. A very similar instability was observed by the present author using lead acetate solutions, as the results given in Table XII show. The method adopted was to compare five cubic centimetres of a standard lead solution at different periods with a freshly prepared standard. The error in preparing and estimating solutions of the same strength by dilution from a stock solution has been shown to be $\pm 2.3\%$ and $\pm 2\%$ for solutions containing 0.10 milligramme and 0.20 milligramme of lead

per cubic centimetre (see Tables III and IV). Hence any error in excess of this must be due to alteration in the lead content of the solution.

The solution was prepared by dissolving the requisite amount of lead acetate in one litre of distilled water and then diluted to give a solution of 0.21 milligramme of lead per cubic centimetre.

It was found that the addition of ten cubic centimetres of glacial acetic acid per litre stabilized the solution, so that even after two months the alteration was within the experimental error.

The fate of the lost lead was not pursued with any detail, beyond the fact that the lead is absorbed by the walls of the container. Thus the vessel can be rinsed with distilled water until no lead is able to be detected in the solution. If the vessel is now rinsed with a few cubic centimetres of 30% nitric acid, lead can be detected readily in the diluted and neutralized acid. The addition of the 1% of acetic acid appears to prevent this absorption.

Bernhard (*loco citato*) suggests that the lead is probably in combination with the silica of the glass, forming lead silicate. Apparently the addition of acid prevents this formation, although Bernhard makes no mention of the stabilizing effect of the acid.

SUMMARY.

1. The application of the Nessler method of lead estimation in alkaline solution using a new technique for minute amounts of lead and the use of a Duboscq colorimeter are described.
2. The accuracy of the method is critically reviewed.
3. The stability of standard lead acetate solutions has been investigated and the stabilizing effect of acetic acid noted.

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TABLE XII.

Number.	Original Lead-content (Milligrammes).	Number of Days Elapsing Prior to Observation.	Lead in Milligrammes per Cubic Centimetre.	Percentage Decrease.	Remarks.
1	0.21	0	0.21	0	Not shaken.
2	0.21	10	0.20	4.8	Not shaken.
3	0.21	10	0.20	4.8	Shaken.
4	0.21	30	0.16	23.8	Not shaken.
5	0.21	30	0.18	14.3	Shaken.
6	0.21	60	0.14	33.3	Not shaken.
7	0.21	60	0.15	18.6	Shaken.
8	0.21	90	0.10	52.5	Not shaken.
9	0.21	90	0.10	52.5	Shaken.

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THE AIMS AND OBJECTS OF THE COLLEGE OF SURGEONS OF AUSTRALASIA.¹

By SIR GEORGE A. SYME, K.B.E., M.B., M.S. (Melbourne), F.R.C.S. (England), F.C.S.A.;

President of the College of Surgeons of Australasia.

THE President has explained the object of this meeting and how it happens that I have been asked to speak. I think I might quite justifiably have declined. I might have told the Council that, as the fullest possible information concerning the College of Surgeons had been already published, it was unnecessary for me to say anything more about its aims. I might have stated that the College was so convinced of the need for its foundation and was so firmly established, that it intended to carry on its activities whether this Branch approved of them or not, leaving it to the public to decide whether the College was inimical to the community.

¹Read at a special meeting of the Victorian Branch of the British Medical Association on March 1, 1928.

The College is an Australasian body. It so chances that its President is a member of this particular Branch and can address you. Suppose allegations concerning the College had been made in New Zealand or in Western Australia, would it be expected that its President should travel to these distant parts to speak about the College? I should say here that although I have agreed to address you, I have no authority from the College to do so. I speak simply as a member of this Branch and can only explain the aims and objects of the College as they appear to me individually. I agreed to speak to you because it is quite possible that misconceptions may exist, and because I am confident that the members of the Branch will take a just and broadminded view of the situation, when it is more fully explained. The College of Surgeons has nothing to fear from sincere or unprejudiced criticism.

The aim of the College may be summed up as an endeavour "to promote the art and science of surgery," to use the words of the Charter of the Royal College of Surgeons of England and in so doing to enable the public to get better surgical service. The College proposes to carry out these aims by arranging for special post-graduate training in surgery and by establishing standards of surgical competence and of surgical ethics. There has not been sufficient time to organize schemes of training yet. The College is only in its infancy and is in process of development. The Executive Committee has written to the various universities and hospitals in Australasia, asking them to suggest measures they are prepared to take for special post-graduate training in surgery. It must be remembered that up to the present none of the universities or hospitals has, so far as I am aware, organized any scheme for post-graduate training in surgery, either for graduates who wish to take a higher surgical degree, or for practitioners who with or without such degree want to acquire or to improve surgical knowledge and skill. This year, but since the College of Surgeons was founded, the Melbourne Post-Graduate Committee has arranged a course of instruction for candidates for the M.S. degree, but not through the University or the hospitals. Instruction is to be given in anatomy and pathology only and by teachers arbitrarily selected by the Committee. The College hopes to arrange for similar courses and for practical instruction in surgery in the different centres in Australasia. It has been suggested that new positions shall be created at hospitals, the holders of which would assist the surgeons at operations, perform operations under their supervision and generally assist in their hospital practice.

This subject, however, is one of the main items on the agenda paper for the meeting of the College to be held at Canberra on March 31—the first meeting. I may remind you, of the College as a whole at which its aims and policy could be discussed by all the fellows. Another object of the College which is to be considered at this meeting, is the improve-

ment of hospitals and hospital methods, so as to promote the practice of surgery under proper conditions. Papers on the subject by Fellows in different States and New Zealand are being prepared and it is hoped to establish a hospital policy. When sufficient funds have been acquired the College will establish a journal, museum and library and endow surgical research, but it must be remembered that "Rome was not built in a day."

In the cultivation and maintenance of "the highest principles of surgical ethics" the College admittedly aims at checking commercialism in surgery. I have on more than one occasion expressed my views on the objectionable increase of commercialism in medicine and the Founders of the College agree with me on this matter, though some members of the profession regard me as old fashioned. The pledge all Fellows have to sign is a clear indication of the attitude of the College and it includes a declaration to submit to discipline. I may remind you that universities have no disciplinary power over their graduates.

The College welcomes honest criticism because it recognizes that it is in process of development. Its constitution is not like "the law of the Medes and Persians which altereth not," but it can be modified as experience is gained. At the meeting on March 31 amendments to the by-laws will be proposed. At the meeting of the Council in Sydney in September last a resolution was carried rather hurriedly at the end of a long sitting, that: "No applicant engaged in general practice in a capital city should be eligible for election as a Fellow." This was mainly a resolution for the guidance of Credentials Committees and the Council itself and it was not a by-law or a regulation. At the last Council meeting in Melbourne in January the resolution was reconsidered and was rescinded. *Humanum est errare*. If it can be shown that the College has made mistakes in its procedure, it is quite willing to rectify them, provided its essential ideals are carried out.

What I have just said explains why the College has not applied for a charter. If a charter had been granted (and it is difficult to get and the application would probably have been opposed by the existing Colleges), the Constitution would have been fixed and could be altered only with great difficulty. Neither has the College yet been incorporated, because then also it would be difficult to change its Memorandum and Articles of Association, and also and chiefly because there is no company act for the Commonwealth, and the Companies Acts are different in the several States and in New Zealand, I might remind you that when the Federal Committee proposed to establish a medical insurance company for all the Branches of the British Medical Association it met the same difficulty and had to abandon the project. Acting under legal advice, the College was therefore established in the first instance as a voluntary association. I may remind you that the British Medical Association itself was established in a similar way by a number of practitioners meeting at Worcester and

voluntarily agreeing to form an Association and it has not now a charter.

At the outset I referred to the Australasian character of the College. I would like to emphasize this because, from remarks I have heard, there is a tendency for some Victorians to regard the College from a purely Victorian point of view and as if it were a purely Victorian institution. This may have arisen because the College has paid Victorians the compliment of appointing a majority of Victorians on the Executive. The compliment is not so great as it appears. It was found expedient to have a majority of the Executive in one State in order to carry on the work of organization and administration in the intervals between Council meetings. It seems to be thought also that Victorians have a preponderating influence in the College. If you will refer to the published account of the Conference held in Sydney on August 25 and 26, 1926, you will find that the basis of the provisional constitution then drawn up was the "exordium" drafted by Professor Sandes, of Sydney, and that the Victorian delegates did not move or second a single resolution. I would also remind you that the idea of forming the College originated in New Zealand and was suggested by Sir Louis Barnett, of Dunedin. The Founders and Council are representatives of the several States of Australia and of the North and South Islands of New Zealand. The conditions of practice are not the same in different parts of the Commonwealth and Dominion and the delegates who founded the College and framed the Constitution and By-laws, held various and differing opinions on several matters that were considered. Compromise was necessary—give and take. For instance, some of us did not approve of the word College and would have preferred Guild or Association, but we gave way. It must be pointed out that the word "College" was used in its original meaning of (to quote Webster's dictionary) "a body of colleagues, voluntarily bound together for certain common objects." The College of Surgeons of Australasia is not a teaching institution and it does not confer a registrable diploma. The resolution of the Eastern Suburbs Subdivision refers to "the qualification of F.C.S.A." There is no such qualification. Fellows of the College of Surgeons of Australasia receive a certificate of membership, which can be withdrawn if they violate their pledge or infringe the Constitution or By-laws. Fellows are entitled to indicate that they are Fellows, in the same way that Fellows of the Royal Society of Medicine or of the Royal Medico-Psychological Society state that they are Fellows of these bodies and do so without any implication that members of the profession who are not Fellows are thereby "aspersed as regards their qualifications and integrity." In the same way Fellows of the Royal Society proudly attach the letters F.R.S., but in so doing cast no reflection on scientists who are not Fellows.

It is contended that the College of Surgeons of Australasia should have been founded by or under

the jurisdiction of the British Medical Association. This view was put forward at the Australasian Medical Congress in Brisbane and is held by some members in Queensland, as well as by the Eastern Suburbs Subdivision. It may be helpful to remind you of what took place at the Congress in 1920, when Sir Louis Barnett first proposed that such a body as the College should be formed. A resolution to that effect was opposed on the ground that it was unnecessary to go outside the British Medical Association to attain the proposed objects. An amendment was carried: "That the members favour the formation of a Section of Surgery in each Branch of the British Medical Association, with a view to the advancement of the science and art of teaching surgery in Australasia." This amendment was moved by Mr. Gordon Craig, seconded by Mr. Kent Hughes and supported by Drs. Lipscomb, Worrall, Newland and myself. All of these are now strong supporters of the College of Surgeons—all are Foundation Fellows—four are Founders and members of the Council. What made them change their opinions? First of all, I take it, because although the need for action of some kind had become more and more manifest in the past six years, no action had been taken by the British Medical Association. Further, it is very doubtful if the British Medical Association could take any satisfactory action under the Memorandum and Articles of its Association. It must be remembered that the British Medical Association was founded by and for general practitioners and all its members are on an equality. Every member of the British Medical Association would have the right to be a member of any association of surgeons formed within or by the British Medical Association. The Federal Committee of the British Medical Association in Australia could not deal satisfactorily with such a matter and even if it had power to act for the Branches in Australia, it could not act for the New Zealand Branch. Speaking of the Federal Committee reminds me that the first conference held in Melbourne at which it was decided that a College of Surgeons was necessary and a provisional constitution was drawn up, consisted of surgeons and specialists who were the representatives of the various Branches of the British Medical Association on the Federal Committee and on the Directorate of THE MEDICAL JOURNAL OF AUSTRALIA. All these had the keenest desire to maintain the powers of the British Medical Association, to conserve its interests and promote its activities. Several of them had contended in 1920 that the British Medical Association should organize the proposed new Surgical Association or College. But they had become satisfied that the British Medical Association could not deal with the matter in such a way as to attain satisfactorily the objects desired. A reference to THE MEDICAL JOURNAL OF AUSTRALIA of January 22, 1927, page 135, will confirm this statement.

Another reason why those who opposed the independent formation of the College in 1920,

changed their minds was that they had become more and more convinced of the harm that was being done by the extensive performance of operations by insufficiently trained operators. The disastrous results of operations thus performed and of operations performed unnecessarily, perhaps from want of sufficient skill or care in diagnosis, came under observation with such increasing frequency that the Founders were forced to the decision that some body like the College of Surgeons was absolutely necessary. It must be recognized that the surgeon of today is not a mere craftsman. He ought to be a scientist, versed in physiology and biochemistry, pathology and bacteriology, as well as anatomy. He ought to possess judgement, derived from experience, as well as technical skill. Sir Berkeley Moynihan in his Mitchell Banks Lecture shows us what modern surgery ought to include. To attain such a combination requires long, arduous and concentrated effort, which can be possible to very few engaged in a large general practice. If by hard work, self-denial and limitation of their practice some do find time and opportunity for such intensive course of scientific study and special hospital training, well and good. They will be welcomed as Fellows of the College, as will all without any limitation of numbers who can show their fitness. But how many do this? Let me quote some words of Sir Berkeley Moynihan, President of the Royal College of Surgeons, England, who has stated: "Surgery today is being practised by too many light-hearted and incompetent surgeons, who have neither sought in due service to acquire a mastery of their craft, nor have learnt from long association in hospital work when an operation should be done, when left undone, how made safe, how made to fall lightly upon a patient already afflicted it may be, by mental no less than by physical distress." I do not expect the Eastern Suburbs Subdivision to agree to this statement, but I would ask not only the surgeons, but physicians and a number even of the general practitioners present if they cannot confirm it from their own experience. If they do, is it right, is it in the best interests of humanity that such practice should continue and that no effort be made to check it? I think it may be said to be an axiom that professional activities which are for the benefit of the public, are eventually and necessarily in the interests of the profession as a whole, even if for a time they may to some degree affect prejudicially the financial interests or personal prestige of a few individual members.

Then there is the ethical aspect, the questions of improper financial arrangements between practitioners and operators and of the performance of unnecessary or even illegitimate operations. It is well known that these things occur. I have myself been approached to divide fees and been reproached and even derided because I refused. The occurrence of fee splitting is within the positive cognizance of the Council of the College. A correspondence in THE MEDICAL JOURNAL OF AUSTRALIA showed that

the position exists and is even defended by some. Perhaps those who object to the College, defend the practice. It would be interesting to know. At all events such a practice is not only unethical under the ethical rules of this Branch, but it is illegal under the *Secret Commissions Act*. What action has the British Medical Association taken beyond the promulgation of resolutions, to prevent it or to punish those who practise it? It is admittedly difficult to detect or to prove specific cases where division of fees has occurred, but the College of Surgeons at least demands a pledge from its members that they will not practise dividing fees in any form and that they will submit to discipline. The College is not so sanguine as to think it can stop such practices, but it hopes to diminish them. Neither does it expect that its activities will prevent operations being performed by incompetent operators. The public will still have a free choice. In course of time, however, it is hoped that the public will learn that surgery demands adequate training and members of the public will inquire as to the competence, possibly also as to the ethical character, of any one who is proposed as an operator.

I might mention one other matter that probably influenced some in favour of the foundation of the College, although they originally opposed it. In February, 1927, several American surgeons visited Australasia. After their return to the United States of America the American College admitted several Australasian surgeons to either Honorary Fellowship or to the Fellowship on a charter membership basis. Several Australasian hospitals were also registered as being of the standard required by the American College. It was felt that if something was not done to establish an Australasian College, the American College would acquire a footing in Australasia and carry out what we were failing to do.

In a circular, signed by Dr. J. Baxter, members have been asked to familiarize themselves with the Constitution of the College as published in *THE MEDICAL JOURNAL OF AUSTRALIA* of January 22, 1927. If you have done so, I must ask you to bear with me while I read it to you, because it is the only way in which I can fulfil my agreement to place before you the aims and objects of the College. May I ask, Mr. President, that the Eastern Suburbs Subdivision will appoint a representative who will state, as I read each item, what in it requires further explanation than I have given, what specific objection is taken to it and in what way it is alleged to be "inimical to the profession and to the community," as is asserted in the resolution of the Subdivision. I will then endeavour to give such further explanation as I can, and to reply to the objections, although as already stated, I have no authority from the College to do so. I also recognize my limitations. Ever since the inception of the College I have been conscious that the very seniority in years by virtue of which I hold office

in the College, involves obvious disabilities and that responsibilities, of which this speech is one, have been thrust upon me, which would be much more capably and satisfactorily discharged by a younger and more alert mind.¹

Mr. President, I have done my best to comply with the request of your Council to explain the aims of the College and in conclusion would restate its ideals.

Galsworthy, in one of his essays, has observed that "modern science and philosophy tend to produce a love of Perfection for Perfection's sake." The ideal of the College of Surgeons of Australasia is to make more perfect the art of surgery and to free it from all commercialism, so that all who practise it shall give the best and most perfect service to the public. The College holds with Sir Berkeley Moynihan that:

Of all the temples in the world none is more sacred than the operation theatre, that nothing base should dwell in such a temple

and

As this temple waxes
The inward service of the mind and soul
Grows wide withal.

THE HOSPITAL PROBLEM OF THE STATE OF VICTORIA: AN OUTLINE OF THE POLICY OF THE CHARITIES BOARD WITH SUGGESTIONS FOR THE PROVISION OF AMPLE HOSPITAL FACILITIES.²

By R. J. LOVE,

Inspector of Hospitals and Charities, Victoria.

THE heading to this paper appears to require an interpretation clause and so I submit that for my purpose "hospital problem" means "the wide question of providing accommodation to meet the hospital needs of all classes."

"Ample hospital facilities" is assumed to mean "provision of accommodation, without distinction as to the financial position of the individual, for all conditions requiring hospital attention, including special departments, out-patients' facilities and chronic and incurable institutions, but does not include, except as incidentals, the care of those cases which are, by Act of Parliament, the concern of the State, such as infectious and mental diseases."

This subject has been discussed in Victoria for too long and in recent years the only action taken has been in regard to public hospitals. It may be of interest to note that there is evidence to show that the progress of the public hospital policy, pursued by the Charities Board under the Act of Parliament passed in 1922, has been beneficial and that it is so regarded by people in other places. I shall give an outline of this policy, but first I will quote three extracts from the reports of Dr. M. T. MacEachern on public hospital conditions in

¹ The Eastern Suburbs Subdivision refused to comply with the suggestion of Sir George Syme who continued reading his paper.
² Read at a meeting of the Victorian Branch of the British Medical Association on March 7, 1928.

Victoria, New South Wales and New Zealand respectively. These extracts are from official communications written by Dr. MacEachern.

Victoria.

The Act provides for the best kind of hospital policy known at present, as it allows for the necessary intelligent control and direction of hospital policy without embarrassing individual or mass effort of members of boards of management, hospital executives, personnel, and medical staffs, and at the same time protects hospital administration in the State of Victoria from the influence of politics. This is very essential today for progressive hospital development and efficient administration. The system developed by the Charities Board is, provided there is an extension in a community direction, the only sane, coordinated policy I know of.

New South Wales.

Recommendations.

1. That in formulating a hospital policy for New South Wales the Honourable Minister of Health gives serious consideration to the Victorian system as briefly described in this summary report.

2. That, as far as practicable, New South Wales adopts a similar hospital policy to Victoria, making such modification and adjustments of details as are necessary.

New Zealand.

The Victorian hospital system uniquely safeguards the multiple interests involved—those of the public, the hospital committees and personnel, the medical profession, the Government and above all, the patient; rather than allowing one or other to predominate to the detriment of others, especially the patient as at present in the New Zealand hospital system. Here it is quite evident that there is too much political influence and interference and too much bureaucratic control. From time immemorial and to immemorial politics and pathology have been and will be incompatible. The New Zealand hospitals, almost wholly bereft of that finest of features so characteristic throughout Victoria—voluntary support—may become cold, routine-like State institutions which would be prevented had they built their system on broad and firm principles as the State of Victoria. The remedy for the ills in the New Zealand system can be found through remodelling their system after that of Victoria.

These extracts are peculiarly interesting, because in Victoria we have a purely voluntary system, in New South Wales the institutions might be termed semi-voluntary, whilst New Zealand hospitals are practically nationalized.

It is impossible to incorporate all details in a paper of this nature and so a great deal is left unsaid and some points receive but brief mention. If, however, anyone is desirous of following up any special aspect, I shall be pleased to discuss it.

It is desirable here to repeat a statement I made elsewhere, that, for hospital purposes, there are four classes of persons in the State, namely, (i) indigent, (ii) near poor, (iii) intermediate, (iv) private, and that ample hospital facilities cannot be provided, unless the needs of each of these grades are satisfactorily met.

The immediate concern of the Charities Board is with the two first mentioned classes, but soon after the Board commenced to function it recognized that there were patients in public hospitals who were

out of their class. A remedy would, of course, have been to tighten up the regulations so as to insure that only the legitimate charity patients would be admitted, but it will be conceded that such a step would have been rather absurd considering that for a large number of patients there was no reasonable alternative.

The Board therefore urged that legislation be passed making it possible to provide for intermediate patients. This word intermediate has been generally adopted and as a classification reference is, I think, useful enough, but after consideration I think it should be rejected as a term descriptive of any hospital or hospital policy. If public institutions be expanded to meet the needs of intermediate patients, this would move the hospital problem only one step farther along the social scale and private patients would be, if anything, worse off than at present, so I want to press that any extensions be all embracing and designed to meet the needs of the whole community. Much has been written and spoken of community hospitals, but this term in general application is not, I think, acceptable to Victoria. It should be admitted that in details of hospitalization the State must be regarded in the two sections of metropolitan and country and any scheme which would satisfy the needs of one section, may not and I think will not, suit the other. Supposing, for example, that the policy be to extend the facilities of country institutions to meet all financial classes, it is not certain that this would be either practicable or sound in Melbourne. I suggest, therefore, that hospital divisions be under three headings, namely, composite hospitals, to provide for the four stated classes; private hospitals, for private and intermediate classes; public hospitals, for the indigent and near poor classes.

If I review generally the policy of the Charities Board in regard to public hospitals, I may be able to show that it is capable of adaptation in some places to fit in with composite units and, where this is not practicable, other satisfactory arrangements can be suggested.

In the metropolitan area the Board's aim is:

To perfect existing public hospitals in order to insure ample bed accommodation and complete efficiency in every detail of general and special medicine.

To provide in selected places in the mid-suburban area clearing houses or consulting clinics.

To insure all necessary accommodation for convalescents, "chronics," incurables.

To establish on the outer suburban fringe a series of district hospitals.

I do not purpose going into minor question of nursing associations, ambulance services and the like, for while these are essential to a comprehensive system, they are scarcely relevant here.

The perfection of existing hospitals means the extension of the institutions not merely by the erection of new wards, but by providing for increased facilities to cope with every possible

demand and also to arrange cooperation with other activities, more especially the State departments dealing with preventive and curative medicine. The general hospitals of Melbourne are not comparable with what are regarded as the first grade general hospitals in other countries, because the former have not a complete range of sub-departments. Extensions will necessitate the provision of more beds, but the point is that these will be added only on a logical scheme based on the carefully computed requirements of the general and special departments.

The consulting clinics are an entirely new departure and the proposal for their adoption is based on observations in other countries, combined with a regard for our peculiar needs and I want you to get right away from any idea that this proposal is an extension of our present free dispensaries, as at present operated. The need for something of this nature was inspired by noting the number of attendances of out-patients at the hospitals and incidentally whilst many practitioners have justifiable ground for complaint against the numbers of people admitted to the wards of public hospitals, these in-patients would not, if I were in practice, cause me nearly as much concern as the huge volume of out-patient attendances. During the last financial year there were in Melbourne 771,613 attendances of 121,670 separate out-patients. I know that there is multiplication of individuals in these figures, but make all allowances for this and the result is sufficiently startling. One of the set questions asked at the preliminary interrogation at public hospitals is: "Are you able to pay private medical fees?" Of course the applicant replies in the negative or he would not be passed for treatment. But is any effort made to determine the strict truth of his statement and if it were, how could it be carried out? The patient has no idea of what a doctor would charge, for he has made no endeavour to ascertain; the interrogation clerk has no means of forming an opinion on the subject, for in most instances this is not a question of scales of fees or recognized charges, but one which in each case can be judged only by the practitioner, and I contend that he should be given the opportunity of making the contract with the patient. Once a person is sent to a public hospital, he becomes the "property" so to speak of that hospital and all treatment, minor as well as major, special as well as general, is carried out by the hospital staff.

I will only mention the waste incurred in making long journeys to and longer waits at the out-patient department and also the imposition by so-called sufferers from minor conditions in the schedule of *Workers' Compensation Act*, for these things are known to you, but they are amongst the factors which impelled the Charities Board to take some decisive steps to remedy the chaotic condition. In fairness to the patient it should be admitted that his part in swelling the formidable list of out-patients has been largely forced on him by accumulated causes which we all recognize.

The Charities Board is about to take steps to launch out on these clinics or centres (a satisfactory name has not yet been selected) and I want to explain as briefly as possible what is proposed.

Assume that the unit both in theory and construction is shaped like a wheel. The hub will be the administration, permanent installation of power, heat and general services and equipment of laboratory, X rays and other scientific units.

One sector of the wheel will be an out-patient's department and will be the only part where treatment is given and this only in minor conditions in poor and nearly poor patients. If after examination it be found that one of these patients requires lengthy or special attention, he will be referred to a general hospital with the result that when the mid-suburban chain is complete, the only patients admitted for out-door treatment at any hospital will be such as are sent either from the centre or directly from a private practitioner.

The next sector will be waiting and examination rooms for patients, referred by private doctors who desire an investigation and report on any special condition. The report will be made only on the written request of the doctor, to whom the findings will be conveyed direct. The patient will pay the centre for the work done on a scale to be determined and will make his own arrangements with his doctor. This unit will be for both intermediate and full pay patients and will be available for all practitioners in the district served and I think it will be admitted that an intermediate out-patient may be of considerably lower financial status than a person who in a major condition could reasonably be drafted into this class. In other words, there can be no hard and fast classification of classes of patient. If the Health Department so desire, a further sector will be a tuberculosis dispensary and as far as possible other social activities such as ante-natal clinics, baby welfare centres and the like, district nurses' *dépôt et cetera* will be brought in, partly for the benefit of being adjacent to a properly equipped and widely known centre and partly, of course, for general economy. It may be found desirable or even essential to provide a dental clinic on similar lines to the medical sectors.

In addition to the ordinary establishment and domestic staffs, there must be a qualified person who may be superintendent, as well as X ray and laboratory specialist or, if the circumstances warrant, there may be separate qualified men for the several departments on part or full time bases according to demands.

The superintendent will be in absolute authority working under trustees composed of persons nominated by the several interests and one of his major duties will be to insure that persons who attend, do so in their correct sector and in proper form. He may give the small amount of free treatment on the charity side or alternatively this may be worked by an honorary staff.

The nearly poor should contribute according to their means and a proportion of the payments

received should, if honorary medical service be given, be available for the honorary staff.

Capital finance would be covered by direct Government and Municipal subsidies, by voluntary contributions and by proportionate debits of the net amount, if any, amongst the several interests.

Maintenance revenue likewise would be derived from these sources, but would be considerably lessened by income from patients. Indeed one would venture to estimate that patients' fees would go a very long way towards meeting all running expenses.

It is anticipated that these centres will materially assist in the systematization of the public hospitals in many ways, not the least of which will be to stop the enormous and ever increasing growth of out-patient attendances, not by refusing treatment to anyone who even thinks he needs medical treatment, but by insisting that there be a clearing house which will insure that the only patients treated at the public hospitals are those who are physically and financially suitable. By this means the numbers should be reduced by at least 50% and those patients who attend will be worth while for the medical staff, the clinical instructors and the medical students.

After having reviewed this question from the point of view of hospital and public welfare, the Board gave consideration to the possible effect on the medical profession and after exhaustive investigation decided that if the doctors will take advantage of the opportunities offered and work along lines of cooperation, the ultimate result will be all in their favour.

The district hospitals referred to as being on the outer suburban fringe are regarded as desirable primarily for the convenience of the patients and local practitioners and would to some extent act as further drafting centres for patients admissible to the general hospitals. In this matter the Board is taking steps to provide hospitals at Dandenong and Lilydale and in time to complete the outer circle at selected spots.

The needs of convalescents, "chronics" and incurables are being met partly at Caulfield, partly by voluntary organizations and to some extent in vacant ward blocks in some country hospitals, which latter are of incalculable value in supplementing the work of the Austin Hospital in taking "chronics" and incurables.

In country districts the aim of the Board is to give reasonably accessible hospitals to every part of the State and although you are all more or less familiar with it, I will sketch the scheme. In far back settlements there are bush nursing centres which in most cases are within reach of cottage or isolated hospitals and are in effect observation units or clearing posts. Within reasonable distance of cottage hospitals are the larger district hospitals which, in addition to ordinary general facilities, have a small laboratory and diagnostic X ray plant. Supporting certain specified groups of district hos-

pitals are base hospitals which will be developed on lines similar to the metropolitan general hospitals.

This briefly sets out the means adopted to meet the requirements of the public hospital population.

A great deal is being said just now about the question of financing public hospitals. Some people would have us believe that the days of the voluntary hospitals are numbered, but if, inferentially, this means that nationalization or maintenance entirely from public funds is the only alternative, I am far from being convinced that this is correct. Further, if the examples of non-voluntary institutions which one sees in other places can be accepted as a standard under such a system, I sincerely hope that these people are poor prophets.

Nationalization has a number of advocates, but I have not yet seen any details of how it is proposed to work the institutions should such a policy be adopted, neither have I ascertained exactly what is meant by the word. In its true sense, of course, it means complete control and management by the State, but from statements I have heard or read I think at least some of the advocates are aiming at municipalization, but I have seen the nationalized or municipalized hospitals of other countries and dominions and have no evidence to show that in Victoria there would be much difference and for this reason alone apart from others, I oppose nationalization.

There is some agitation in favour of national insurance. National insurance against sickness has admittedly great possibilities and I should like to follow up the idea formulated by some authorities whereunder, when hospitalization was required, the insured would be given the sum due under the schedule of his policy and made to pay his own hospital accounts in any class of hospital he chose to use. However, I think that any such movement is in the distant future and that it is not desirable to defer any action until the necessary legislation is passed.

That, then, is the policy for the public patients and now comes the question of whether and if so, how far it can be used or adapted for the two classes which are, or should be, debarred from charitable institutions.

The Board's ideal is as previously stated, to arrange a policy which will insure that every person irrespective of financial status shall, when ill, have easy access to efficient hospital service with all its special branches. As with the public hospitals it is necessary to regard the metropolis and country separately, except in so far that in the largest centres of population it may be found possible to act on similar lines to those followed in Melbourne.

In the United States of America the agitation is for community hospitals everywhere, but it should be mentioned that these institutions are not nearly so general throughout the United States as we have been led, perhaps unintentionally, to infer.

In the majority of country districts formation of composite hospitals with the existing public institu-

tions as a foundation would be a simple enough matter. The addition of ward units of two or three beds each for intermediate patients and of private rooms for full paying patients could in practically every case be made to conform to the existing layout in such a way as to produce an efficient and economic institution. The administration would be practically on similar lines as at present and the medical staffing would vary according to the size of the district only in the matter of service to the indigent and near poor. Where it would be impracticable to do otherwise, an elected honorary staff should be appointed for this purpose and, as in the case of the suburban centres, any fees paid by the near poor patients should be divided in agreed proportions between the hospital and a staff fund, the disposition of this staff fund being a matter entirely for the judgement of the medical officers concerned. The intermediate and private wards would be available to every reputable practitioner in the area served. The fact that a doctor in a district hospital town has a private patient to whom attention can be given only in a base institution because of the special facilities, and other questions bearing on the relationship between members of the profession in regard to specific cases, must be matters for adjustment amongst the men concerned.

In the metropolitan area the problem appears to me to require different handling.

There is a shortage of public hospital accommodation in Melbourne. Granted that extensions are being carried out and that a well thought out policy will divert a number of patients to private hospitals, it must be recognized that most of our public hospitals are in such a position in their respective boundaries that there is a visible limitation to their expansion and the maximum will not be sufficient to meet the ever growing population. This means that the introduction of composite institutions is hardly practicable or possible and so for private purposes I think we are compelled to look to the establishment of hospitals wholly separate from the public institutions except in one matter and that is purely economic, whereunder it may be possible for a private hospital to be erected in close proximity to a public one in order that there may be a common power plant and conjoint establishment and domestic departments.

The intermediate hospitals in Melbourne (and it may be found desirable to establish these in Bendigo, Ballarat and Geelong) whilst being of incalculable value to the system, must be expanded to give all facilities for the two types of patients for whom private accommodation is essential. If for any reason it be found that entirely new establishments are needed, then I would urge that these might be taken away from the centre of the metropolitan area and placed at such selected spots as will enable the doctor to have easy access and to relieve relatives and friends from much difficulty in visiting.

I do not want to go into the question of who should establish the private hospitals, whether

church organizations, friendly societies, insurance companies or private companies, but I do not view with favour the idea of State or municipal ownership and management and I think it must be fundamental that no place be established or registered unless it conform to a well defined standard of building, equipment and facilities. As this whole question is one of community welfare, I am of opinion that the Government and municipalities should make funds available either as subsidies or on long easy loans to enable any approved scheme to be consummated.

WILLIAM BALMAIN, M.D., R.N.: SURGEON ON THE FIRST FLEET.

By JOHN MACPHERSON, M.A., B.Sc., M.B., Ch.M. (Sydney),
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WILLIAM BALMAIN was born in Dunmow, Essex, England, in 1764 and entered the Royal Navy as Surgeon's Mate in 1780. He was appointed Assistant Surgeon to the New South Wales Corps in 1786. Later he was Second Assistant Surgeon on H.M.S. *Alexander* of the First Fleet, in charge of two hundred and ten male convicts consigned to Botany Bay. On April 8, 1787, Balmain attended the birth of the first child of the Fleet, the mother being a hapless convict awaiting transportation. One's imagination can scarcely comprehend the misery and horror of such a child-birth. Arriving in New South Wales in January, 1788, Balmain early came into conflict with Surgeon-General White. Balmain was a man of great personality, decided and fearless in his opinions. An illiterate scribe writes to the effect that on the night of August 12, 1788, Surgeon-General White ("Wight") and Dr. Balmain ("Belmain") fired their pistols at each other in a duel, both combatants being slightly wounded. White's bitter resentment against Balmain never ceased. Nevertheless Balmain became Surgeon-General himself in 1796 and I have seen it stated that he was also in that year Chief Magistrate for Sydney. Family tradition assigns him the position of Naval Officer for New South Wales in 1800. He became also Commandant of the Loyal Associate Corps of Volunteers in 1800 or 1802. He was as well a member of the Gaol Committee.

Natives Attack the Governor.

On September 7, 1790, Governor Phillip was speared and seriously wounded by an aboriginal at Manly. The spear struck him a little below the shoulder and pierced quite through the fleshy part of his chest wall, protruding four or five inches on the other side. His Excellency was immediately taken down to the boat and brought home to Sydney. As Surgeon-General John White had gone away that morning on an exploring expedition, Dr. Balmain extracted the spear and dressed the wound. The Governor was in great agony, but the record

of the day stated that "it is thought he will recover, though, at the same time, His Excellency is highly scorbutic." In 1794 Balmain was Assistant Surgeon at Norfolk Island. In 1795 he was First Assistant Surgeon and Acting Principal Surgeon at Sydney. In this year he received a land grant in Sydney of three-quarters of an acre and four rods. Early in 1796, White having left New South Wales and not returned, Balmain who had undertaken his duties, applied for the full salary of Principal Surgeon. Writing to Governor Hunter, Balmain asserted that White who was present when this demand was made by his agents, objected to it and insisted that he had engaged a person at his own expense to assist him in his duties as Principal Surgeon. Balmain wrote:

I appeal to your Excellency whether such an affirmation is true and whether Mr. White is endeavouring to prevent me receiving what, in common justice is my due, has not artfully cast an unworthy reflection on my ability.

The actual facts of the case are not quite certain; the upshot was, however, that White was requested to return at once to New South Wales and, as he did not do so, a commission was issued on August 16, 1796, appointing William Balmain Surgeon-General to the settlement.

Balmain Challenges to a Duel.

In 1796 Balmain had a violent quarrel with Captain MacArthur and the military officers. He considered MacArthur to be truculent, litigious and quarrelsome and challenged him to a duel, which challenge was not accepted. In this year Governor Hunter placed on record his great approval of Balmain's character and appreciation of his services.

Balmain and the Governor.

Under the direction of Governor Hunter and Balmain the original hospital was demolished and reerected on a stone foundation near the site of Argyle Cut. A dispensary and hospital store were also built. About two acres of land were apportioned to the hospital. For the surgeons, suitable brick quarters were erected north of the hospital grounds on Dawes Point. But still the accommodation was overtaxed. For until 1797, when a special hospital was built for their own treatment, invalided soldiers of the New South Wales Corps were accommodated in the General Hospital and also sick sailors received attendance there. Special fees were assigned for the cure of His Majesty's seamen. In these conditions all kinds of serious illnesses were treated, without any means of isolation. Deaths resulted from "dysentery, cholera morbus, fevers, consumptions, lues venerea, epilepsy, iliac passions and locked jaw." In 1798, Balmain, still Chief Surgeon, corresponded with Governor Hunter and his epistles showed that he had the courage of his opinions and fearlessly stood up to constituted authority. One letter, dated July 31, 1798, has a delightful human touch. This letter directs His Excellency's attention to the fact that, in addition to his official duties as

Chief Surgeon to the settlement, he was called upon to treat such members of His Majesty's Navy as were ill. For such attendance he was entitled to the sum of thirteen shillings and sixpence for every cure effected. But this sum had to be collected in England by an agent from the Sick and Hurt Board. One can readily imagine the difficulties of collection. Balmain therefore asked that, instead of this precarious gratuity, he be granted an extra five shillings *per diem* to his pay to cover all his professional activities. A further letter to Governor Hunter on August 1, 1798, reiterating what he had already written three years previously, detailed the inadequacy of medical supplies, equipment and personnel and demanded punctual attendance on his request for various articles for the sick. He pointed out that on the River Hawkesbury, in the growing settlement there, the only person available to perform medical duty was an unskilled convict. The number of qualified medical men in the various settlements, including Norfolk Island, was far too small. The doctors of that time frequently had to travel many miles on foot through the night. Balmain specially recommended that Surgeon Arndell who had retired from the Service, be appointed Apothecary.

Balmain's Land Grants.

In those days grants of land were made to military and civil officers. A small grant had already been given to Balmain and under Governor Hunter's régime he received further grants. On September 3, 1797, he was awarded one hundred acres, on July 1, 1798, one hundred and five acres and on August 3, 1799, a further two hundred and twenty acres. All these were on the Field of Mars, adjoining the Parramatta River, north-west, west and south-west of the present Ryde railway station, the first mentioned being between Ryde and Eastwood railway stations. On November 12, 1799, Balmain received, also from Governor Hunter, a grant of two hundred and seventy acres at Mulgrave Place on the Hawkesbury River. This was called the Sister's Farm and is situated on what is now known as Magrath's Hill, Windsor. Balmain resided, but did not practise in the Hawkesbury district and he still continued in the discharge of his official duties. On April 26, 1800, a further Crown grant was accorded to Balmain, namely five hundred and fifty acres including the whole of the peninsula now called after the original grantee the suburb of Balmain. I have somewhere seen it stated that he altogether possessed seven hundred and fifty acres in this locality, including an area formerly occupied by Major Ross. For this I have no definite authority. Balmain subsequently sold this grant to Dr. Gilchrist at the price of £5 16s. 6d. per acre. Dr. Gilchrist later subdivided and resold the land. In the *Sydney Gazette* of April 17, 1823, was an advertisement of one James Elder, a well known identity of the period, who had followed many callings, including those of baker, educational and religious bookseller and estate agent. The advertisement reads:

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Gilchrist Place. To be let, for such a term of years as may be agreed upon, that very desirable Estate, Gilchrist Place, better known by the name of Balmain's Point, the property of Dr. John Borthwick Gilchrist, and consisting of 550 acres. All further particulars will be learned on application to Mr. James Elder, George Street, Parramatta.

It has been stated that in all Balmain received nine grants of land. In 1902 he was stated to have possessed one thousand two hundred and fifty-five acres of land granted and two hundred and twenty-five acres of land purchased from settlers. Of these one hundred and eighty acres were cleared. He was also in possession of twelve cattle. In 1800 Balmain was declared indebted to the Crown for the sum of £476 13s. 4d. for the hire of eleven convict servants. Balmain admitted the use of eight convict servants only and successfully claimed that they were assigned to him as a reward for his services. In 1802 he sold his livestock to the Government.

Balmain's Other Activities.

On October 1, 1800, Surgeon Martin Mason, who had arrived in 1798, was appointed assistant to Balmain who, though still Principal Surgeon, engaged in other activities. In 1800, together with MacArthur and James Williamson, he imported clothing, tea, sugar and spirits from India. During the rule of Governor Hunter the traffic in rum had increased in the Colony. Captain Phillip Gidley King was appointed Governor on September 26, 1800, with special instructions to suppress the traffic. All who possessed large quantities of rum were required gradually to dispose of it. Amongst these were Principal Surgeon William Balmain and Assistant Surgeon D'Arcy Wentworth (who had been appointed in 1796). These had amassed nearly one thousand four hundred and three thousand gallons respectively. In 1801 Balmain temporarily left Sydney. In 1802 he wrote in England to Sir Joseph Banks, recommending reforms in the administration, legal and other, of the Colony. The first volunteers in Australia were the Sydney and Parramatta Loyal Associate Corps, two Volunteer Corps of fifty men each, formed as a result of a rumoured outbreak amongst the political prisoners in December, 1800. Later the services of these corps were partially dispensed with. On October 22, 1802, Balmain was Commandant of both Corps. In 1804 the Principal Surgeon received a salary of £365 *per annum*, his senior assistant £182 10s., two assistants £136 17s. 6d. and the junior £91 5s. The Service was still grossly underpaid and the surgeons in the country asserted that they were unable to maintain a horse for their work. The Principal Surgeon superintended the hospitals and made daily and occasional reports to the Governor. The Surgeon-General and one assistant surgeon resided in Sydney and had a staff of twenty convicts working at the hospital as overseers, dressers, wardmen, gardeners and boatmen. Nurses were also selected from the convicts.

Balmain was on leave in England in 1805 and he died either in that year or the following one.

Balmain had not the scientific enthusiasm of White or Considen, but he was efficient, zealous, fearless and humane. He was one of the founders of the City of Sydney, a noteworthy and respected citizen, who did much to ameliorate the lot of his fellow human beings, both free and convict. His descendants are with us still. His grandson, Mr. Hope Balmain was a licensed surveyor in the Cooma district and his great-grandsons, Messrs. A. and W. Hope Balmain, are now residing at Bega and Cooma respectively and are members of the Australasian Pioneers' Club. Thomas Jamison, who had acted as Principal Surgeon and Surgeon-General in 1801 to 1802, definitely succeeded Balmain as Surgeon-General in 1805.

Acknowledgements.

Much of the matter contained in these notes has been taken from Henniker Heaton's "Australian Dictionary of Dates," the "Historical Records," the writings of Dr. Fred Watson and articles by Mr. Henry Selkirk and Mr. J. F. Campbell in the *Journal of the Royal Australian Historical Society* and the *Journal of the Parramatta and District Historical Society*.

Reports of Cases.

CYST OF THE OVARY IN A CHILD AGED THREE YEARS.

By P. MURRAY-CURTIS, M.B. (Sydney),

Honorary Assistant Surgeon, Mater Misericordiae Hospital, North Sydney.

THE following case is to my mind worthy of note, not on account of the condition itself, but on account of the age of the patient.

About a month ago I was asked to see a female child of three years who was evidently in extreme abdominal pain. The mother informed me that the child, who had no previous illness of any description, suddenly commenced to scream and could not be pacified. When I saw the patient, she had then been screaming for about half an hour. Above the pubes was a tumour which felt very like a distended bladder. Temperature and pulse were normal. The child had had a normal bowel action some few hours previously. I sent the patient to hospital when it was given an enema with a normal result. The bladder was catheterized, but still the tumour remained. I thereupon opened the abdomen and found the tumour to be the left ovary which had become quite cystic and about the size of a large peach with a pedicle twisted several times upon itself. It was a simple unilocular oophoronic cyst. The patient made an uninterrupted recovery.

On referring to several books on gynaecology and general surgery I could find no statistics on the matter. Bland Sutton in one of his works states that the condition can occur at any period from fetal life to extreme old age. I have spoken about the case to many of my colleagues, but none has come across the condition in so young a patient, nor do I know of anyone who has heard of a specific case. One of our foremost surgeons and a man with a tremendous experience in diseases of children kindly wrote to me and told me that he had seen a similar condition about twenty years ago in a child eight years of age.

The extreme rarity of an ovarian cyst with torsion of the pedicle in a child three years of age is my reason for bringing this case before the notice of readers of the journal.

Reviews.

A HANDBOOK OF CLINICAL METHODS.

"THE METHODS OF CLINICAL DIAGNOSIS," by A. G. Gibson and W. T. Collier, is a good student's handbook and is recommended to graduates who wish to bring their clinical methods up to date.¹ The book contains descriptions of electro-cardiographic findings, the fractional test meal, basal metabolism, blood coagulation time, Van den Bergh's tests and the urea concentration test. Vibration sense is better described in this book than in many others.

The reader is again struck by the lack of unanimity found in textbooks concerning the segmental skin areas. There are several stock diagrams that appear, and each shows considerable variation from its fellows. There is need for a standard picture. An important omission concerns the effect of posture in intensifying heart murmurs. There is no mention of the intensification of an aortic murmur when the patient is examined leaning forward or of the intensification of a presystolic murmur when the patient is lying half way between the supine and the left lateral position. Incidentally it is not mentioned that exercise accentuates the latter murmur and renders the former more difficult to detect; nor that the apex beat moves to the left when the patient lies towards the left side.

Perhaps the greatest error in the book is the incompleteness of the following statement: "This defect (apraxia) is associated with lesions in the commissural fibres between two portions of cortex on the same side."

Another error is a common one in textbooks, namely, the statement that Benedict's is more delicate than Fehling's test. The fact is that it is less delicate and therefore fewer reducing substances produce a precipitate. Actually too small an amount of sugar to reduce Benedict's solution might produce a positive result in Fehling's test.

LARYNGO-RHINO-OTOLOGY.

"DISEASES OF THE THROAT, NOSE AND EAR," by Dan McKenzie, M.D., F.R.C.S.E., is a manual of exceptional practical value.² This is the second edition and the book has been enlarged by nearly one-third of the size of the first edition. The book comprises six hundred and seventy-seven pages including the index. It is printed in clear type and there are two hundred and fifty-four illustrations; these are of exceptional clearness and help materially in following the description of operations *et cetera* given in the text.

The coloured frontispiece which is one of the drawings executed for Sir Morell MacKenzie by Lennox Browne, gives a clear and graphic representation of the laryngeal features in recurrent laryngeal paralysis.

The contents are divided into seventeen chapters starting in the first two chapters with general semeiology and examination of the buccal cavity, fauces and pharynx. These are essentially practical. Local anaesthesia by cocaine is advocated for surface application and "Eucaine" or "Novocaine" for anaesthesia by infiltration.

Affections of the pharynx and tonsils are dealt with in the next chapter. The author considers enucleation by the guillotine to be the most suitable operation in children and tonsillectomy by dissection to be the best operation for adults. He states that in tuberculosis the tonsils

should invariably be dissected out, whether the patient is young or old.

Apart from the fact that many surgeons are loath to remove tonsils in tuberculosis patients, some surgeons will find it difficult to understand why the guillotine method is not still the one chosen in young people.

Examination of the larynx and laryngeal technique are clearly described. The indications for laryngo-fissure on the one hand and laryngectomy on the other in the treatment of laryngeal neoplasms are well detailed. The steps of the different operations are clearly shown.

The description of the endoscopic work, that is, laryngoscopy, bronchoscopy and oesophagoscopy is rather disappointing. It appears to lack that clear description of technique that is characteristic of the way in which the author deals with the other operations. The affections of the nose are clearly outlined, the different operations being well described and the technique clearly shown.

The chapter on examination and diseases of the nasal accessory sinuses is planned in a practical way.

When dealing with operative interference in cases of chronic sinusitis the author mentions the final principle of treatment to be that: "No operation should exceed in risk the disease it is designed to cure." The statement that in sphenoidal sinus suppuration the X ray film shows the sinus to be translucent is not found to be true by many rhinologists.

The operation on the maxillary antrum advised is the nasal antrostomy for early and mild infections, the radical Caldwell Luc operation being reserved for those of long standing.

In dealing with chronic infection of the frontal sinus the author advocates the intranasal operation for the earlier infections and either the Ogston Luc or Howarth for those of long standing. The Killian operation is not recommended. Spreading osteomyelitis is clearly described. Nasal sinusitis in children is described and conservative treatment advocated. In the treatment of naso-pharyngeal fibroma the author considers that diathermy bids fair to replace the older methods of operating.

The section on the ear comprises approximately one-third of the text. It commences with a chapter on the examination of the ear and included in this is a clear description of the otolith reactions. The affections of the ear are dealt with in a very practical way. The treatment of acute and chronic middle ear suppuration is clearly described, as are also the symptoms and signs of the onset of mastoiditis. Operative treatment of the mastoid is on conservative lines, especially in children, when the statement is made that the great majority of patients with acute lesions and 50% of those with chronic infections get well with simple meatal treatment. Statistics of the Edinburgh Royal Infirmary on the results of the Schwartz, Heath and Radical operations add interest to the practical description of the different operations. Early posterior drainage in the treatment of acute suppurative otitis media is advocated in certain cases. Nerve deafness and labyrinthine disease are dealt with in a clear and concise manner.

Towards the close of the book there is a chapter describing the affections of the mouth. Here the various diseases are superficially dealt with, excepting those such as dental cysts and affections of the base of the tongue, which are described in more detail.

The final chapter on the lymphatic vessels and glands of the head and neck is very helpful. The removal of the tonsils in the cases of malignant cervical glands where no visible focus can be found is recommended, as the primary growth in the tonsils is often very difficult to discover.

Altogether this volume forms a most practical and useful manual. The lucid way in which the subject matter is dealt with, makes it a book easily read and understood. It can therefore be highly recommended to all those desirous of obtaining an up-to-date knowledge of diseases of the nose, throat and ear.

¹"The Methods of Clinical Diagnosis," by Alexander George Gibson, M.D., F.R.C.P., and William Tregonwell Collier, M.D., M.R.C.P.; 1927. London: Edward Arnold and Company. Crown 8vo., pp. 406, with illustrations. Price: 12s. 6d. net.

²"Diseases of the Throat, Nose and Ear," by Dan McKenzie, M.D., F.R.C.S.E.; Second Edition; 1927. London: William Heinemann (Medical Books) Limited. Imp. 8vo., pp. 688, with illustrations. Price: 45s. net.

The Medical Journal of Australia

SATURDAY, APRIL 21, 1928.

The College of Surgeons of Australasia.

THE first annual meeting of the College of Surgeons of Australasia has taken place at Canberra on March 31 and April 2 and 3, 1928. There was a large gathering and the setting was a worthy one. The Federal capital, notwithstanding its distance from the centres of thought and activity and notwithstanding the immaturity of its development, was a suitable place for this important function. The natural beauty of the site, unchallengeable though it be, would not have attracted men from all parts of the Commonwealth of Australia and of the Dominion of New Zealand on its own account. The fact that this embryo city has become the capital of Australia and that it is the visible sign of that great advance which took place twenty-seven years ago, are the two powerful reasons for the choice of the first place of meeting of this new professional body. We have commented on several occasions on the objects of the College of Surgeons. It will function side by side with the Branches of the British Medical Association in Australia and New Zealand without conflict and without overlapping, if the counsels of these bodies remain true to the high traditions that induced Charles Hastings to initiate the British Medical Association and that incited the small band of senior surgeons to establish the College of Surgeons. This first meeting has been remarkable for the excellence of the scientific contributions presented to the Fellows. There was an atmosphere of novelty that indicated progress and serious study. There was a stateliness lent by the environment that enhanced the earnestness of the occasion and the determination of those assembled to push aside personal advantage for the advancement of the science and art of surgery and for the benefit of humanity. The brief records which appeared in the daily newspapers of the proceedings were aptly silent concerning the technical aspect of the meeting. Some of the discussions on the general ideals

of the new organization and on the measures that are being adopted to achieve these ends, were recounted, for the information of an interested world. The transactions of the meeting will be published in a new journal which the College of Surgeons of Australasia proposes to initiate within a short time. THE MEDICAL JOURNAL OF AUSTRALIA will welcome the appearance of this new periodical, not as a competitor, but as an educational agent, supplementing its functions and assisting it to raise the efficiency of Australasian medicine and surgery.

At the meeting of the College a debate took place on the provision of hospitals for all members of the community and on the best method of insuring satisfactory surgical treatment at the hospitals. Reference is made in this place to this discussion not because it is proposed to criticize the suggestions put forward or the arguments adduced in favour of the views, but in order that attention may be called to the necessity for extreme care in handling matters of sociological importance. Experience has taught over and over again that it is futile to expect a large body of men and women to determine a policy in connexion with problems affecting the general welfare of the community. At the general meeting that has just taken place at Canberra, a few of the members came prepared to put forward views on the hospital question. These men had considered the matter with care and had arrived at a conclusion concerning the best method of dealing with the defects of the present systems. Their views may or may not prove to be the best solutions of the problems. But it was inevitable that the great majority of those present at the meeting was not in a position to express a considered opinion on the details of the schemes formulated. A general meeting is not constituted to examine in detail and to discuss and amend any particular scheme. Sufficient time is not provided; the members have not had the details before them prior to the meeting to analyse and to criticize. It is the task of a committee to subject the proposals to sharp criticism. It is the function of a deliberative body constituted for the purpose to debate the matter after it has emerged from the process of hypercritical examination in committee and to accept or refuse the principles as a matter of policy. The

Australasian Medical Congress (British Medical Association) has no power, as its predecessor congress had, of passing resolutions on sociological subjects. All it can do is to refer such matters to the Federal Committee of the British Medical Association in Australia for consideration. The College of Surgeons has acted unwisely in admitting a discussion on the hospital question at its first general meeting. Its determination to refer the findings to the Council of the College for the necessary action modifies but does not eradicate the initial mistake.

There has been a considerable amount of criticism concerning the methods that have been adopted by the founders of the College of Surgeons. This criticism began as a whisper and culminated in a shout. No one appears to challenge the objects of the institution. It seems that exception is taken by some to the endeavour to apply a hall mark to certain practitioners whose training and experience give them a right to stand in the front rank of surgeons. It is held that if this hall mark is so distinct that the community at large cannot fail to distinguish it, the reputations and earning capacity of less well trained and less experienced practitioners must suffer. This argument is specious, for it is essentially in the interests of the community that save in emergency surgical intervention should take place under the most favourable conditions. The life and the safety of a patient should not be endangered because a medical practitioner has to make a living. There are many general practitioners who have trained themselves to become skilful and competent as operating surgeons; the reputation of these men is well known to the community in which they live. Their colleagues soon realize their claims and admit their ability. But there are others who pose as surgeons without such justification.

The fact that the College of Surgeons is a self appointed body is an empty proposition. The British Medical Association was founded by a single individual. The Royal College of Surgeons began as a guild of self-elected craftsmen and afterwards obtained official recognition and statutory sanction. Again offence has been taken on account of the methods of selection of the Fellows. Mistakes may

have been made, but those who have examined the procedure dispassionately and disinterestedly, will admit that honest caution has been exercised in the selection. Lastly, it has been claimed that the whole of the medical profession or at least the whole of the Branches of the British Medical Association in Australasia should have been consulted in regard to the machinery of the College. Had this been done, the College would have been useless and its essential object would have been defeated. The College of Surgeons of Australasia is a fact, in spite of the opposition. If it exercises wisdom in the manner in which it conducts its business and carries out its functions, it will have a great future. A few minor mistakes and errors of judgment are of small moment. The thing that matters, is that it is fearless in the prosecution of its ideals.

Current Comment.

ANTE-NATAL INFECTION.

IN all discussions on foetal and early infantile death attention is devoted almost exclusively to such questions as the life of the child *in utero*, the site of implantation of the placenta, the size of the maternal passages, the methods used to assist or hasten delivery and the presence of syphilitic infection in the mother and in the child. Normally the placenta acts as a barrier or filter which prevents the introduction of bacteria or their noxious products into the circulation of the foetus. It is obvious that the placenta cannot be regarded merely as a mechanical apparatus for bringing the foetal circulation into communication with that of the mother. Its endothelial cells are undoubtedly endowed with specific functions of a selective nature. This is universally acknowledged in regard to such cells as kidney cells and must similarly be recognized for the placenta. The specific action of kidney cells may be altered or suspended as a result of pathological stimuli and similarly the filter action of the placenta may occasionally fail. Medical literature contains records of many cases in which pathological lesions have been found in the bodies of children who have died either before or soon after birth. In view of the importance of the subject from a preventive point of view, it may serve a useful purpose to refer to two cases which have recently been reported by Emile Duskes and Eva F. Dodge.¹

In one instance a woman, aged twenty-six years, gave birth to a dead child. The mother was syphilitic. On *post mortem* examination it was found that the child was definitely syphilitic, but in addition pneumococci were discovered in smears

¹ American Journal of Diseases of Children, February, 1928.

made from peritoneal exudate, were grown on culture and were found in fixed tissue. It was learned on inquiry that the mother had suffered from a sore throat a week before delivery, but that this had cleared up within a few days. Cultures from her blood yielded no growth, those taken from the nose yielded hæmolytic *Staphylococcus albus*, streptococcus and a few pneumococci, those from the throat yielded streptococci, *Staphylococcus aureus* and a hæmolytic *Staphylococcus albus*. The authors point out that it is impossible to prove that the mother's sore throat was caused primarily by a pneumococcal infection, because pneumococci are present in the upper respiratory passages of a large number of persons. They offer as an explanation that the illness was caused by the usual staphylococci and streptococci, but that in the process of lowered resistance the pneumococci gained entrance to the blood stream of the mother and then to that of the fœtus. This is most likely correct as far as it goes, but it does not go far enough. There are three paths by which organisms may reach the fœtus *in utero*, from the exterior through the lower genital passages, from the peritoneal cavity by the Fallopian tubes and from the maternal circulation by way of the decidua. It is safe to conclude, as the authors have done, that the latter was the path in the case under consideration. What, then, were the factors which allowed the organisms to pass through the placental filter? Probably the mother's syphilis had something to do with this. But maternal syphilis is by no means always destructive of the filter or barrier. The reaction of the body to an infective agent is always in its essence a cellular one. When the infection gains the upper hand, it is either because the virulence of the organisms has been too great and the dose too large for the production of antibodies or else the cells are in so damaged a state from some antecedent or concomitant condition, that they fail to react normally to a circulating antigen. There is nothing to show that the pneumococcal infection of the mother in this first case of Duskes and Dodge was exceptionally severe. The sore throat which she had before the birth of the child, was not accompanied by chills, fever, pains in the joints or cough. It must, therefore, be concluded that the cellular resistance was but slight. The reaction of the mother's blood to the Wassermann test is described as "+ + +." The placental cells undoubtedly shared in what may be termed the depreciated state of her body as a whole. Apparently no detailed macroscopical or microscopical examination was made of the placenta and the published account of the clinical findings make no reference to other abnormalities. That other conditions may be associated with a similar result is shown in the second case reported by these workers.

In this instance the patient was thirty-two years of age. She gave birth to a premature child. She died on the second day after the confinement. At the autopsy the following conditions were found: acute putrid endometritis, thrombosis of the right ovarian vein, cloudy swelling of the heart and liver,

acute congestion of the kidneys, œdema of the lungs, acute splenic tumour, early arteriosclerosis of the aorta and fibrous peritoneal adhesions of the right upper quadrant of the abdomen. A blood culture taken at the autopsy yielded pneumococci. The fœtus was in good preservation and careful and complete gross and microscopical examination revealed no pathological changes. Spirochaetes or other microorganisms could not be found in the tissues, but a blood culture yielded pneumococci. Unfortunately the history was neither complete nor entirely reliable. There was a suspicion that abortive interference had taken place. There is no doubt that a septicæmia occurred and that the infection was transmitted to the blood of the fœtus. Duskes and Dodge do not raise the question as to which of the changes found *post mortem* were present before the pneumococcal septicæmia. A number of them were unquestionably the result of the puerperal infection, but it is not unlikely that the early arteriosclerosis of the aorta, occurring as it did in so young a patient, was the result of syphilis. This would interfere with the normal functioning of the placenta cells, but it is probably correct to conclude that in this instance, in contradistinction to that previously mentioned, it was the virulence of the infection which was mainly instrumental in breaking down the placental barrier.

In the summary to their paper Duskes and Dodge state that maternal bacterial carriers at times produce relatively little if any ill effects, but that when the resistance is lowered, the fetus may be influenced in an extremely unfavourable manner. It would be better to put this on a larger plane and to insist that ante-natal care should include a search for all foci of infection and a general supervision of the health of the mother as well as of those aspects which are commonly held to be important.

PULMONARY GANGRENE FOLLOWING DIPHTHERIA.

In a recent report C. J. Olcott and J. G. Merselis¹ give details of a case of pulmonary gangrene following diphtheria. They can find no similar instance in the literature. The patient was a girl, aged fifteen years. The symptoms were not suggestive of gangrene until forty hours before death. At autopsy the lower two-thirds of the right lung were completely gangrenous. The organisms found in lung tissue included diphtheria bacilli, non-hæmolytic streptococci, staphylococci and Vincent's fusiform and spirillar organisms. A distinct line of demarcation was present, but the affected area did not correspond to the interlobar fissures. Gangrene of the lung is generally described as being diffuse or circumscribed. This case was evidently of the latter variety. No mention is made of an obstructive lesion in any of the large vessels. An unusual feature was the absence of cavitation in the lung. The authors regard the diphtheria bacillus as of ætiological importance rather than the fuso-spirillar forms.

¹ American Journal of Diseases of Children, February, 1928.

Abstracts from Current Medical Literature.

MORBID ANATOMY.

The Therapy of Acute Infections.

WILLIAM SUSMAN (*The British Journal of Experimental Pathology*, December, 1927) has reported some experiments which "indicate that the subcutaneous administration of an extract of brain tissue exerts a beneficial effect on the process of immunization." In one series of observations twelve adult rabbits were inoculated subcutaneously with a saline emulsion of *Bacillus typhosus*. A twenty-four hour culture was used, the organisms were killed by heat and the emulsion was standardized to three thousand million organisms to one cubic centimetre. Four rabbits were regarded as controls and received no further injections, four received in addition subcutaneous injections of 0.065 milligramme of atropine in one cubic centimetre and the remaining four animals received injections of an aqueous brain extract. The injections were repeated at various intervals. During immunization the rate of development of agglutination in the serum was observed. It was found that while inoculation of the rabbits with *Bacillus typhosus* alone resulted in a satisfactory production of agglutinins, the immunization process was much accelerated and a much higher titre was reached when brain extract was also injected. On the other hand, it was found that atropine depressed the rate of agglutinin formation. In another series of observations 520 mice were inoculated with pneumococcus Type I; 258 were controls and the remainder received injections of brain extract. The standard dilution and dose of pneumococcus serum broth culture used was 0.1 cubic centimetre to one, which killed a mouse in three to four days. All the control animals died and of the others 133 or 51% survived. The author believes that the injections of brain extract have contributed in some way towards an increased resistance to infection. He holds that this may be due to the fact established experimentally that extract of brain stimulates the pulsations and probably the functional activity of the spleen.

Histamine and Leucocytes.

R. T. GRANT AND J. EDWIN WOOD, JUNIOR (*The Journal of Pathology and Bacteriology*, January, 1928) draw attention to the different conclusions which have been reached in regard to the action of histamine on leucocytes. On the one hand, Wolf has found that histamine strongly attracts leucocytes *in vitro* and when injected in concentrations of 0.1% to 0.25% into the dorsal lymph sac or peritoneal cavity of frogs, causes a rapid and intense inflammatory reaction of the mesentery with fibrin formation,

profuse leucocytic emigration and diapedesis of red cells; injected intraperitoneally into mice, it produced a less intense and less rapid inflammation. On the other hand, Bloom concluded that histamine is indifferent as far as chemotaxis is concerned *in vitro* and when injected subcutaneously or intraperitoneally causes in cats an inflammation no greater than that produced by physiological saline solution. The authors have repeated Wolf's experiments on the frog and have made others on the rabbit and on human skin. They have used 0.5% histamine acid phosphate dissolved in physiological saline solution with the addition of sodium hydrate immediately before use to give a pH of 7.3. They have found that histamine has no appreciable power to cause emigration of leucocytes from the blood vessels of either the frog or the rabbit or when pricked into human skin. They conclude that release of histamine from injured tissue does not provide a full explanation of the process of inflammation.

Primary Mesenchymal Hepatoma.

N. C. FOOT (*The American Journal of Pathology*, November, 1927) reports the occurrence in a child, aged four months, of a tumour looked upon by him as a primary mesenchymal hepatoma. It was found on *post mortem* examination that the liver was everywhere studded with small greyish-yellow areas, averaging one to two millimetres in diameter and projecting above the surface, but beneath the capsule. On the cut surface similar greyish-yellow areas were distinct from the dull brown parenchyma whose markings were diffuse and obscure. These tubercles were often softened in their centres, as though they were necrotic. The tumours simulated multiple granulomata and were thought at first to be tuberculous or syphilitic. Closer examination showed that they were neoplastic. The parenchyma of the organ was compressed and distorted by a growth of new tissue in the periportal areas. The collections of cells were quite foreign to this situation. They were of irregular size and shape, pale, often somewhat vacuolated and usually discrete, arranged either loosely or in rambling cords, but not in epithelial complexes suggesting alveoli. The only cells which resembled those of the tumour with any exactness, were found in the walls of the sinusoids or free in their lumina, rather than associated with epithelium; they were obviously Kupffer cells. There was a fibrous tissue reaction to the presence of the tumour and there was interference with the flow of bile; the stroma was composed chiefly of reticulum. Similar cells and reticulum were found in the neighbouring costal bone marrow; these were probably metastases, although this was not proved. The author discusses the nature of the growth. He enumerates the various points in favour of and against an epithelial origin and concludes that the tumour probably had

its origin in the mesodermal primordium of the liver. He states that there is ample evidence that the Kupffer cells may form large aggregations in tuberculosis and other conditions and sees no reason why these cells should not be capable of undergoing somewhat similar changes under the influence of neoplastic stimulation and of becoming transformed into actively growing tumours.

Thrombo-Angiitis Obliterans.

R. O. GIRDWOOD (*The Journal of Pathology and Bacteriology*, October, 1927) reports a case of *thrombo-angiitis obliterans* and describes the lesions. The patient was a man, aged thirty-five years and amputation was performed at the junction of the middle and lower thirds of the thigh. The slighter changes consisted of localized intimal thickening with or without alteration of the media. The most striking changes consisted of obstruction, more or less complete, of the lumen of the arteries by organizing or organized thrombus along with local or general intimal thickening and some fibrosis of the media. In some instances the organized thrombus had become canalized. Dense fibrous changes had taken place in the tissues in the immediate neighbourhood. In many of the veins there was some thickening of the wall and localized intimal thickening confined to the area in closest relation to the affected artery. The author points out that these changes are in the main similar to those reported in other cases of the condition.

An Atypical Hypernephroma.

JOHN GRAY (*The Journal of Pathology and Bacteriology*, October, 1927) reports a hypernephroma of atypical structure. A greyish renal tumour was found at the upper pole of the left kidney. The suprarenal body was not involved. The thyroid gland was the seat of long standing cystic and fibro-adenomatous enlargement and on examination early malignant changes were discovered. Nothing was observed to suggest that the thyroid and renal tumours had a common origin. The renal tumour consisted of papilliferous cystadenomatous tissue and also of tissue of a typical hypernephroma type. The transition from one type to the other was so gradual as to suggest to the author that tumours of the kidney of these two types may sometimes have an identical origin.

Leucocytic Changes Following Liver Feeding in Pernicious Anæmia.

L. E. H. WHITBY (*The Lancet*, February 11, 1928) draws attention to the leucocytic changes following liver feeding in pernicious anæmia. In common with many chronic intoxications, pernicious anæmia is characterized by a leucopenia and a relative lymphocytosis. In two of four patients observed by the author the relative lymphocytosis disappeared and the differential count became normal, except for a transient but definite eosinophilia. Eosinophilia was found in all four instances. It

seems to be part of the patient's reaction to the treatment. The transient nature of the phenomenon points to a parallel between the reticulocyte reaction and the increase in eosinophile cells. It is considered likely by the author that eosinophilia will be found to be a favourable prognostic sign. Those unacquainted with the phenomenon are not unlikely to suspect that parasites derived from the raw liver have been implanted in the patient.

MORPHOLOGY.

The Interstitial Tissue of the Central Nervous System.

F. E. REYNOLDS AND JAMES K. SEATER (*Edinburgh Medical Journal*, February, 1928) give an account of some work which they have done on the structure and arrangement of the interstitial tissue elements of the central nervous system as an introduction to the study of the part they play in the nutrition of nerve cells. As the views at present held on the structure of neuroglia are widely divergent, the authors undertook this investigation to ascertain which teaching they should follow. They give the following scheme to show the origin and relationship of the elements of the central nervous system: The ectoderm gives rise to nervous parenchyma, ependyma, astrocytes and oligodendroglia, while the mesoderm gives rise to microglia. The astrocytes and oligodendroglia together comprise the neuroglia and the interstitial tissue of the central nervous system is thus composed of the neuroglia and microglia. Astrocytes are large cells having many processes, at least one of which is implanted upon the adventitial wall of a capillary or smaller blood vessel, the implantation taking the form of a small pyramidal expansion of the cytoplasmic process and called the vascular foot-plate. They are of two types, namely, those containing fibres and more abundant in the white matter and those having no fibres developed in their cytoplasm and forming the majority of astrocytes in the grey matter. One undoubted function of the astrocyte is to support the nervous parenchyma, but in addition it is suggested that the vascular foot-plates subserve the function of nutritive exchange between the astrocytes and the perivascular spaces and also the nervous parenchymal cell. The oligodendroglia is smaller than the astrocyte and as its name implies, has few processes. It occurs between the myelin sheaths of nerve fibres and hence is often seen in rows in the white matter. A certain number of small oligodendroglial cells occurs in the grey matter where their processes wrap themselves around the parenchymal cell. Oligodendroglia is very abundant and comprises the majority of interstitial cells. From the fact that it is plentiful in young animals, especially during the period of active myelination and that at this time the cells are particularly rich in granules, it has been suggested there is an

analogy, both structurally and functionally, between oligodendroglia within the brain and cord and neurolemma which envelopes the myelin sheath of the peripheral nerve fibre. Microglia consists of comparatively small cells, mesodermal in origin, and possesses neither fibres nor vascular foot-plates. Microglial cells may become wandering amoeboid cells and it is believed that they are the chief elements concerned in phagocytosis of particles of cerebral tissue after destructive processes and their removal to perivascular lymphatic spaces.

The So-called "Disuse" Atrophy of Muscle.

N. ROSS SMITH (*Journal of Anatomy*, January, 1928) records observations on the subject of the so-called "disuse" atrophy of muscle. He criticises the generally held opinion that inactivity of a muscle leads to rapid wasting. He points out that "disuse" has been applied indiscriminately to atrophy after denervation, atrophy associated with disease of bone or joint and atrophy following upon immobilization of a limb for fracture, the correction of a deformity or the imposition of rest. The experiments of Langley appear to show that atrophy after denervation is the result of excessive activity in the form of fibrillation, also muscular wasting with bone or joint disease is more rapid and extreme than that which occurs with simple disuse of the limb. These observations and others which the author cites, lead him to make the observations here recorded. He describes the condition of a muscle present in three specimens of congenital absence of the tibia. In all three specimens this muscle was attached solely to the shaft of the fibula and was therefore presumably unable to shorten and was functionless. Nevertheless it persisted without atrophy or degeneration. In all three cases there was abundant time for the occurrence of atrophy from disuse, but that atrophy did not occur seems to throw some doubt on the "disuse" theory.

The Significance of the Concentric Corpuscles of Hassall.

NOTWITHSTANDING much histological study of the concentric corpuscles of the mammalian thymus, H. E. Jordan and Guy W. Horsley (*The Anatomical Record*, June 25, 1927) hold that there is as yet no agreement regarding the correct interpretation of their significance. The earlier and more common interpretation of these corpuscles is that they are atrophic remnants of original tubular entodermal primordia. Recently the problem has been attacked by the experimental methods of autoplasmic transplants and tissue cultures and these methods have demonstrated that the earlier views lack adequate support. It is the purpose of this investigation to supply further histological evidence which seems to demonstrate an origin of these corpuscles chiefly from capillaries and precapillary arterioles of involuting thymus bodies in man and

the rabbit. Their evidence suggests an origin in small part also from reticulum cells, but the precise differentiation of a reticulum cell by hypertrophy from an endothelial cell in a similar condition is admittedly difficult and uncertain. Assuming that the reticulum cell in question is actually a mesenchymal representative rather than an ectodermal remnant, evidence for which accrues from a study of involuting lymphatic glands, a double origin of Hassall's corpuscles from two genetically closely related and only slightly differentiated derivatives of the parent mesenchyme, reticulum cell and endothelium implies no serious contradiction. If the explanation of the concentric corpuscles or segments of obliterated blood vessels in the involuting thymus is correct, then it should be easily possible to demonstrate comparable structures in other lymphoid organs in process of regression. Evidence of such corpuscles the authors have found in certain involuting subcutaneous and abdominal lymphatic glands of a rabbit. The authors conclude that the histological data consistently support the interpretation of these thymus corpuscles as restricted areas of stenosis or occlusion of the lumen of medullary capillaries and precapillary arterioles, resulting from endothelial cell hypertrophy together with disease or age involution.

Cerebral Cicatrix.

P. DEL RIO-HORTEGA AND W. PENFIELD (*Bulletin of the Johns Hopkins Hospital*, November, 1927) state that the appearance of neuroglia astrocytes serve as a delicate indicator of the action of noxious influences upon the central nervous system. They therefore undertook an investigation in order to discover the stages in the reaction of these cells. They found that the formation of a simple cicatrix in the brain presents the following stages: The first cellular change is observed in microglia cells which begin their phagocytic activity early and continue it for a long period. Later the neuroglia astrocytes about the wound become swollen and those closest to the area of destruction or to obliterated vessels undergo clasmotodendrosis. There follows rapid mitotic division of the other astrocytes and the cells then become fibrous and arrange themselves typically in a radial fashion about the wound. A connective tissue core forms at the centre, connective tissue collagen fibrils are laid down and the wound contracts. In stabs where no connective tissue core is present, there is no tendency for a radial arrangement of the astrocytes and no evidence of contraction. Compound granular corpuscles were numerous in the wounds. Transitions could be seen from microglia to these cells, but evidence was found of astrocytes becoming mobile and developing into the above-mentioned cells. When products of degeneration had disappeared from the wound microglia in its complicated spider-like form appeared in the scar.

British Medical Association News.

MEDICO-POLITICAL.

A MEETING OF THE VICTORIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the Medical Society Hall, East Melbourne, on March 1, 1928, Dr. J. NEWMAN MORRIS, the President, in the chair.

The College of Surgeons of Australasia.

SIR GEORGE SYME read a paper entitled: "The Aims and Objects of The College of Surgeons of Australasia" (see page 488).

DR. WALTER SUMMONS read out the following reasons why the Eastern Suburbs Subdivision had regarded the College of Surgeons of Australasia as at present constituted to be inimical to the best interests of the profession.

1. It is considered that such a body conferring an additional surgical diploma is unnecessary, seeing that lower and higher degrees are already granted by the universities. If further improvement in the practice of surgery is necessary, the matter should be sanctioned or rather controlled by the universities and the British Medical Association. To conform to Rule II of the Branch the formation of the College should be under the jurisdiction of the British Medical Association.

2. By inference aspersions are cast upon the qualifications and integrity of non-members.

3. (a) There is a lack of information as to the proposed improvements in the teaching of surgical craft.

- (b) The denial of membership to urban and suburban general practitioners will tend to limit the practice of surgery to a few men, so that the community will suffer.

- (c) The College will not prevent the practice of surgery by unskilled practitioners.

4. The proposal to make a public statement is viewed with grave suspicion as a dangerous precedent.

5. The formation of the College is economically undesirable for the profession.

6. The constitution of the College is inconsistent in that extra qualifications are expected of the members, but no limitations are placed on the variety of their practice.

Dr. Summons pointed out that it was not the aims and objects of the College which were objected to, but the methods by which they were to be obtained. The majority of general practitioners viewed the College with suspicion and were afraid that it would affect their incomes. The surgery done by the general practitioner who was well aware of his limitations, represented to a large extent the profit of his practice. He asked for tolerance for the views of the general practitioner and hoped that it would be possible to settle all points of difference.

MR. CEDRIC ROCHE said that he would like to state his appreciation of the declared objects for which the College stood, namely, the advancement of surgery in general and the securing of a better service for the public. The positions of the founders and their fellow enthusiasts were such as to make much good possible in these directions. He thought that no one would mind the personnel of the College being entirely confined to exclusive surgical specialists, if the College were not appealing to the public direct and over the heads of the profession in general to recognize only its fellows as competent surgeons. Surely under such circumstances the only professional qualification necessary to secure membership should be the ability to operate satisfactorily as shown by actual results and it was satisfactory to know that at this belated juncture the general practitioner was going to be eligible. Surely the man whom circumstances compelled to start in general

practice, ought to be encouraged to take up such work experience showed him most fitted to perform.

It had always seemed to him that much progress could be made towards the declared objects of the College, if surgeons were to adopt a more reasonable attitude in their dealings with practitioners. He personally held and practised, that when a surgeon was called in consultation or saw a referred patient with regard to operation, he should not under ordinary circumstances assume charge of the case, but should only do that technical work in which he specialized, at the same time being responsible for the same. He thought that all else belonged to the practitioner unless he wished otherwise. By conducting the after-treatment, as well as taking part in the operation, the practitioner earned a reasonable share in the total surgical fees, in addition to sustaining his prestige and keeping his patients. Although he had great faith that the general practitioner would attempt only what surgical work he was capable of, surely if he attempted anything further it must react adversely on him.

He thought that an autocratic and grasping attitude on the part of consulting surgeons would for economic reasons alone drive men to attempt more than that of which they were capable. The public held the general practitioner directly responsible for his choice of a surgeon. Hence there was no fear that anyone other than a capable surgeon would be called in, at any rate not a second time. If the College were worried about the secret passing of commissions, then he felt sure that they were being disturbed over a negligible practice, but it was absurd to cast aspersions on a system by which all were paid for what they earned.

If there were practitioners who in their enterprise and confidence attempted more surgically than they were capable of, some reasonable plan could be formulated to direct them to more restricted fields or alternatively to help them to better accomplishment, without inflicting injustice on the profession in general. He could not see how the College in its proposed activities was going to aid this at all, especially amongst the uninformed public, to whom degrees meant little and a persuasive manner much.

DR. J. W. FLORANCE, representing the Goulburn Valley Subdivision, said it had passed the following motion:

The system of nomination proposed by the College of Surgeons of Australasia would lead to abuse and that from the 1st of March, 1928, a higher surgical degree should be necessary for membership.

Dr. Florance said that two men in his district had been approached to submit themselves as candidates for admission to the College and he thought that invidious distinctions of this character should not be drawn.

SIR GEORGE SYME said that the College did not send out invitations and asked Dr. Florance who had approached the men in question.

Dr. Florance said that he did not know, but that the invitations had not come officially from the College.

DR. F. L. DAVIES begged leave to move the following motion:

That in the opinion of this meeting The College of Surgeons of Australasia is inimical to the best interests of members of this Branch.

In *The Argus* of February 8, 1927, there was a report of the formation of the College, in which occurred the following:

At the close of the exordium is the formal clause declaring the College constituted. It is pointed out that the idea is not to give degrees in competition with Australasian Universities, but rather to safeguard the public, for black sheep exist in every profession and in the medical profession their detection and exposure is very difficult, because the practice of surgery requires special training and dexterity. Fees for operations are higher than those for ordinary medical services and some unscrupulous practitioners

are tempted to accept surgical responsibilities for which they have not been adequately trained and to perform operations that are not necessary. College surgeons will enable the public to ascertain whether any operator they propose to employ is not only capable but trustworthy.

The inference from this last sentence was not hard to seek and he for one objected to such a slur being placed on an honourable body of men. Some years ago a medical club had been formed and attempts had been made to bring this body, the Surgical Association and the Paediatric Society under the Victorian Branch of the British Medical Association. One of the advantages claimed for the Surgical Association being outside the British Medical Association was that the surgeons meeting together would be more ready to discuss their failures if not in the presence of medical men from whom they might expect to obtain work. So it seemed that the general practitioner was not the only one who was untrustworthy.

He had seen the work of many surgeons and some very fine work too, but he had also seen very good work done by men in general practice. That mistakes were made everyone must admit, but no one should be so sure of himself that he could have anything but a charitable attitude towards the faults and failings of others. As far as he personally was concerned it mattered very little. He had been long enough in practice to hope to be able to continue to the end, but he thought that the young practitioner would be unduly handicapped. He was only to be admitted after showing surgical ability and until he was admitted all sorts of restrictions were to prevent him from showing that he was qualified.

Sir George Syme had not touched on the proposed newspaper propaganda which it had been stated in THE MEDICAL JOURNAL OF AUSTRALIA was to take place.

The criticism of commercialism might apply equally to members of the College, one of whom had actually stated, when discussing the number of plates in Collins Street, that men who had given up time to hospital work and post-graduate study, objected to so many men coming into Collins Street seeking after the flesh pots of Egypt; so the money aspect was not outside the objectives of the College.

DR. J. M. BAXTER, in seconding Dr. Davies' motion, said that he was in accord with anything intended to improve surgery, but he did not approve of the method by which the College proposed to attain this object. The British Medical Association had been founded with, amongst others, the following objectives: "To maintain the honour and interests of the medical profession" and "to consider any question of medical polity." Surely the matter under discussion affected the interests of the profession and also medical polity and should therefore come under the consideration of the Branch.

The British Medical Association was also founded to form a bond of union amongst members of the profession, but the College was doing its best to cause disunion.

The State and the universities had conferred on them the right to practise medicine and surgery and members of their own Council were on the Faculty of Medicine. Surely if anything were required to enhance the standard of surgical practice, it was their duty to consider the matter.

The College was a self appointed and self laudatory body, with very high ideas concerning themselves, setting out to legislate for the whole profession. The rank and file of the profession should have some voice in what concerned them and resented very much any dictation from an irresponsible body in a matter that affected their means of livelihood.

Although it was now said that general practitioners might be admitted, it had at first been proposed to exclude them even, although they might hold positions on one of the metropolitan hospitals and do a large amount of operating. In the country certain men were chosen to the exclusion of others equally capable and thus to their disadvantage.

By inference aspersions were cast on the integrity, qualifications and trustworthiness of non-members, as the

College intended to teach the community that its members were men of high surgical ability and of good character.

The College could not prevent the performance of operations by unsuitable men, but it tended to lower the dignity and status of many competent men. All means were to be taken to prevent the rank and file from doing surgery, but there was to be no attempt to limit the work of the Fellows who were to be allowed to do all kinds of work including medicine and some of whom were actually doing the medical work of public schools and factories.

He was not ashamed to maintain that one of the main objections to the College was from the economic aspect. General practice and surgery were intimately associated with each other and in many cases were not separable. The choosing of medicine as a profession was primarily that they might make a living, but this did not mean that they could not at the same time do good to others and safeguard their lives and interests.

One of the salient functions of the British Medical Association was to see that the ethical code was conformed to. It was strongly opposed to advertising both direct and indirect. Sir George Syme who had been an honoured President of the Branch, had always studiously avoided any suspicion of advertising, yet as President of the College he was to carry on in the lay press a campaign of advertising to inform the community what supermen the Fellows were. This, he thought, was in direct conflict with the rules of the British Medical Association.

The College set out to question the ability and trustworthiness of the general practitioner without whose active cooperation no scheme could succeed.

DR. D. M. EMBELTON expressed appreciation of what had been said by previous speakers. He would dislike anyone to think that he was intolerant of endeavour prompted by high ideals. All branches of medical service were closely linked together and therefore concerted effort on the part of the profession was necessary.

The service provided by the profession fell into four main groups, general medicine, surgery, obstetrics and the various specialities. The relative magnitude of these services could be clearly understood by a review of over twenty thousand visits in his own practice. For every one major and two minor surgical operations not necessarily performed by himself, and two confinements, there were two hundred and fifty medical visits. This general physician service was the big service for which contracts had been made, occupied at least seven-eighths of the time and provided about half of the total income in a practice, half private and half lodge. When due regard was made for overhead expenses it could be seen that surgery was paid forty or fifty times as much for the time spent as was lodge work. In the industrial suburbs of Melbourne, comprising a population of 600,000, 30% of the people were on lodges, 25% received complete medical service including midwifery from public hospitals, another 25% got in-patient service from public hospitals, and some of the remainder paid their way. Visits to lodge patients worked out at about sixpence or one shilling per visit and lodge work was conducted as an introduction to midwifery and surgery and financed by fees received from these incidentals. Had surgeons and others considered what must happen if the general practitioner lost all surgery and midwifery? He must leave the industrial suburbs and commence practice in residential areas already over-stuffed. The general physician service in industrial areas would then have to be carried out through the agency of suburban out-patient departments, as devised by the Secretary of the Charities Board and thus nationalization would take the place of general practice. If the British Medical Association meant anything it meant loyalty of all members and to maintain that loyalty they must endeavour to lighten the economic difficulty of the struggling junior. What was required was tolerant sympathy for each others' difficulties and not mutual misunderstanding. In his opinion, to raise the standard of surgery the fees for medicine should be raised. This would raise the standard of medicine also and they would thereby achieve a great

national service. The profession should either guide the public in the judicious provision of medical and nursing attention or else watch the guidance of the public by their own efficient agents, such as the Secretary of the Charities Board, who would employ and remunerate the profession as the public wished. He would like to remind surgeons that the early recognition of diseases such as tuberculosis, poliomyelitis and cerebro-spinal disease required much ability and would save an enormous amount of morbidity and mortality. To ignore the finance of this major preventive and therapeutic service was to do a great professional and national harm.

DR. J. S. GREEN said that he had great respect for the College of Surgeons, but he would like to point out that as a general practitioner he considered himself able to do some surgery and that he was nevertheless honest and recognized his limitations. He freely admitted that Sir George Syme was a very much abler surgeon than he, but he did not think it was ethical to advertise this to the public.

DR. KEITH HALLAM said that the College of Surgeons was a self-constituted oligarchy of ambitious surgeons, setting out to establish for the profession ideal standards of surgery. Surgery was just as much a matter for the general practitioner as the other branches of his profession and he asked what would happen if obstetricians, gynaecologists, paediatrists and other specialists founded organizations on similar lines. A dangerous gulf in the profession was imminent and in order to prevent this he suggested that the College should approach the British Medical Association with a view to ascertaining how best the ideals it stood for could be attained. He agreed that some check should be placed on the unrestricted surgery of insufficiently qualified men.

DR. WEIGALL said that he would like to ask Sir George Syme how it was proposed to assess the surgical ability of candidates applying for admission to the College.

DR. F. KINGSLEY NORRIS thought that the objects of the College were quite worthy, but he would like to know if any restriction was to be placed on the promiscuous practice of medicine by the fellows of the College and also who was to perform the necessary surgery while the College was holding its meeting at Canberra?

DR. SPALDING LAURIE thought that Sir George Syme had adopted a rather uncompromising attitude. If the reproach of trying to make money quickly were hurled at the general practitioner, it applied still more to the surgeons in Collins Street. If the general practitioner were to be prevented from doing surgery, how could he hope to cope with surgical emergencies which might have to be dealt with before a surgical specialist could be obtained. A good deal of dissatisfaction had arisen from the immoderate statements made by some of the Fellows. There had been undue coercion brought to bear to induce some members to join.

DR. WILLIAMS, speaking as a country member, said that, although he might be accused of having an oriental mind, he was suspicious of the methods of the College, but not of its members. He was entirely in accord with what Dr. Florence had said. It was very difficult to answer personal inquiries about a candidate for admission and an easy way out was to say that he was a good fellow. He hoped that the College would formulate a better method for electing its members. He would like to be informed as to what exactly was to be published in the daily newspapers concerning the College. Sir George Syme had quoted Moynihan's idea of a surgeon, but the latter had also described himself as a general practitioner condemned to practice surgery. In the country the effect of the College would be to limit the practice of surgery to its fellows.

DR. W. OSTERMEYER said that it had been maintained that a surgeon should be expert in biochemistry, physiology, anatomy and bacteriology, but so must the physician if he were to fulfil properly his ideals. The physician, in contrast to the surgeon, did not receive proportionately adequate recognition for his work. The College was attempting to establish on American lines a nominee body of surgical gods and demi-gods which was in principle

essentially not Australian. There was not to be any open examination on the lines of that conducted by the Royal College of Surgeons, London, as a test of membership.

The College could not prevent the performance of major operations in public hospitals by men who were not Fellows. It must be remembered that in the country there were many men who did and must perform emergency operations and to a large extent they had all to teach and educate themselves after qualification unto the very end. He thought that physicians and the public were admirable judges of a good surgeon and therefore did not need the assistance of the College in helping them to choose one. If the standard of surgical training needed improving, it should be done openly through the University which conferred both lower and higher degrees in surgery as in medicine. Were they to understand that the University's present surgical degrees were meaningless?

DR. R. M. SHAW asked how it was possible to educate the public along the lines suggested by the College without infringing the ethical rules of the British Medical Association with regard to advertising.

DR. R. R. STAWELL, speaking as a physician, said that he had followed the development of the College with great interest, but grave misunderstandings had arisen. He could not conceive that the College with all its high ideals and having regard to the standing of the men who were its founders, would do anything unethical in the matter of advertising. It might just as well be said that when a man had been given a higher degree, that advertisement had taken place and a distinction drawn. The College would help rather than hinder the young practitioner who had an inclination for surgery and it had already begun to plan systematic post-graduate study in surgery.

DR. R. G. MCPHEE said that the ideals of the College were good, but its methods had caused some misunderstanding. There were two main points of objection, first the mode of election of members and second that the public were to be given to understand that only members of the College were competent surgeons. It depended on the honesty of the general practitioner to decide what surgery he was capable of undertaking. He thought that the College might reasonably be trusted to carry out its ideals without detriment to the general practitioner.

DR. C. MAXWELL said that Dr. Stawell had voiced the ideals of the College, but these did not coincide with its practice. He did not feel that the fellows of the College were the sole possessors of honesty. One of the aims of the College was to educate the public that the practice of surgery needed special training, but he believed that when he had received his degrees from the University, he was capable of practising both medicine and surgery and he intended to do so as long as the public had confidence in his ability. He was quite capable of deciding what he was competent to do both in medicine and surgery. He felt that the practice of medicine was more important than that of surgery, but was in comparison poorly paid.

MR. B. T. ZWAR said that during the last year he had had the honour of representing the Branch at the Annual Meeting of the Association. He had taken the opportunity of discussing the formation of such a body as the College of Surgeons of Australasia with men who were not only leaders in their particular field of medicine or surgery, but were also strong supporters of the British Medical Association. These men had expressed themselves strongly in favour of the formation of an organization with objectives similar to that of the College. Mr. Zwar referred the audience to the expressed opinion of Professor Wilkie, Professor of Surgery in the University of Edinburgh, to Mr. John Watson in "The Fundamentals of the Art of Surgery." The views of both of these men were strongly in favour of such a movement.

On the continent of Europe he found that leaders in the profession held the same view regarding the desirability of such a movement. Medical students and practitioners were taught to realize that the practice in special work required special training; he instanced details regarding the practice which operated in Holland.

Mr. Zwar stressed the point that a movement similar to that of the formation of the College of Surgeons of Australasia was a world-wide one; that the necessity for it had been brought about by evolutionary developments in the realms of surgery. The movement everywhere was definitely in the interests of suffering humanity and therefore in the interests of the medical profession; it must therefore receive the support of so great an organization as the British Medical Association.

DR. D. ROSENBERG said that it had been distinctly stated in THE MEDICAL JOURNAL OF AUSTRALIA that Sir George Syme was to prepare a statement for the lay press. The College was a closed body which had already rescinded one resolution, namely, that referring to the admission of general practitioners in a capital city, but there was no reason why this determination could not be revoked at any time. This was the difficulty about nominee bodies. They could similarly rescind other resolutions without consulting the general profession. How was it possible for a practitioner to become a member, if surgical experience was a necessary qualification and if the College proposed to make it difficult for non-members to do surgery? The University, acting in conjunction with the Branch, could by raising the standard of its surgical degrees achieve in a better way the objects aimed at by the College.

DR. S. V. SEWELL said that they must accept the fact that the College had already been formed and that it must expect to face grave initial difficulties. It would provide a powerful stimulus to post-graduate study in surgery. The time would come when everyone practising surgery must be a fellow and it was unfair to assume that the College would become a narrow oligarchy. He thought that it would be a false move for the British Medical Association if Dr. Davies's motion were carried. The College should prevent its members from continuing in attendance on patients with purely medical conditions, which was still the practice of most surgeons in that city.

DR. P. B. McCUMISKY agreed that the ideals of the College were perfection itself. He would like to ask why admission was through a nominee body and not by competitive examination and would the possession of degrees like F.R.C.S. and M.S. entitle the holder to membership. If general practitioners were excluded, how could a country practitioner become a member?

DR. J. F. WILKINSON appealed to the meeting not to carry the motion. If this were done a serious split in the profession might occur. He asked members to have confidence in their Council which could be safely trusted to watch their interests.

DR. A. P. DERHAM said that if asked to vote on the motion in its present form he would vote against it, because it was too drastic, but if it were modified to express disapproval of only some of the methods of the College he would be prepared to support it. No amount of rhetoric could cloud the essential logic of Dr. Green's remarks.

DR. J. NEWMAN MORRIS said that opportunity had been given for the fullest and freest discussion of the subject under consideration. In calling on Sir George Syme to reply, he would like to thank him for the time and trouble he had been put to in the preparation of his very able address.

SIR GEORGE SYME in reply said that the discussion had revealed a clear cut division of opinion. The College held that the practice of major surgery, to be properly done, required adequate preparation and training, whilst most of the speakers maintained that it did not. The College could not, as had been assumed by many speakers, prevent the practice of surgery by the general practitioner.

In reply to Dr. McCumisky, he wished to state that after a certain period a higher surgical degree would be a necessary qualification for membership. It would not, however, necessarily entitle the holder to membership, as he might have had no experience in major surgery. There was no need for the College to hold a competitive examination, as this would lead to unnecessary duplication.

If a practitioner could show that he was a competent surgeon and ethical, he would be admitted even although he were doing general practice.

The referees, who had been named by candidates seeking admission, had in many cases been surprisingly frank in their replies and had not, as had been suggested, given an invariably favourable report.

It must not be assumed that non-members were either unethical or incompetent. The College was quite willing to accept any suggestions as to a better method of electing members.

The College had asked him to prepare a statement for the lay press which would enable the public to understand its aims, but this was not personal advertisement.

The Fellows of the College did not pledge themselves to confine their practice entirely to surgery. If it were right for the general practitioner to do major surgery as claimed by some of the speakers, surely it was equally right for the surgeon to practice general medicine. The College, however, was in favour of specialization in surgery.

It had been stated that the College made invidious distinctions in the choice of its members. The rules of admission were quite clear and anyone conforming to them would be admitted. No invidious distinctions were made.

The members of the College had been unjustly accused of self interest, which was the motive of the opposition to it.

DR. E. R. WHITE moved and Dr. J. P. MAJOR seconded:
That the meeting adjourn *sine die*.

The motion was put to the meeting by the chairman and carried by a large majority.

A MEETING OF THE VICTORIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the Medical Society Hall, East Melbourne, on March 7, 1928, Dr. J. NEWMAN MORRIS, the President, in the chair.

The Hospital Problem.

DR. J. NEWMAN MORRIS introduced Mr. R. J. LOVE and thanked him for consenting to address the Branch on the hospital problem. This question presented many points of interest and importance common to both the profession and the Charities Board.

MR. R. J. LOVE then read a paper entitled: "The Hospital Problem of the State of Victoria: An Outline of the Policy of the Charities Board with Suggestions for the Provision of Ample Hospital Facilities" (see page 491).

DR. D. ROSENBERG said that he had in the past been a medical officer to the Richmond dispensary and was now a member of the committee. The number of patients attending had rapidly increased, but neither the interrogation clerk, the committee, nor the medical officer had any control over their admission. The patients simply filled in the form adopted by the Charities Board and there was no way to check their statements. As the consulting clinics which the Charities Board proposed to establish were to undertake treatment in certain cases, it was not likely that private practitioners would send their private patients to such institutions. Local charities could not collect funds for upkeep from local sources and had to call on the Government, municipalities or the Lord Mayor's fund. Under such circumstances Dr. Rosenberg failed to see how this was different from nationalization. He agreed with Mr. Love that State hospitals in America were very poor in quality, but was unable to distinguish between the proposals of the Charities Board and the American national hospital. The private work of the profession had already been seriously encroached upon and further inroads threatened its extinction.

DR. B. M. SUTHERLAND said that as a result of the visit of Dr. MacEachern the discussion on the hospital problem had to a large extent centred around the American system. The difference between the British and American hospitals was largely a matter of finance and he thought they were in danger of developing a champagne appetite on a beer pocket. In American hospitals the percentage of non-paying patients was very small, but in the British hospitals the great bulk of the patients paid nothing. He

thought that any extension of the hospital system should be accompanied by an education of the medical pride of the public. In both the in-patient and out-patient departments of their public hospitals many patients were paying much less than they were able to pay. This was partly due to the expense involved in X ray and other special methods of examination in private practice and patients being recommended to hospitals for special examinations. Many of these patients were then retained as out-patients, although they would prefer to be attended by their local medical practitioner.

The consulting clinics which the Charities Board proposed to establish, would very soon be overcrowded, unless rigid safeguards were provided regarding the admission of patients for advice and treatment and unless the public were educated that those able to pay should not accept medical charity.

DR. G. S. ROBINSON said that at the Williamstown Hospital which was the centre of an industrial suburb containing twenty-five thousand people, the number of out-patients was very small, rarely exceeding more than five daily. He attributed this to the fact that there was no resident surgeon, each medical officer attending daily. He thought that if the profession had control of the consulting clinics they need not fear overcrowding.

DR. J. F. SPRING said that he was very suspicious of an organization coming from any body outside the medical profession. Such was more likely to benefit the community and not the profession. Owing to the large inroads being made on private practice the stage was being reached when the profession would be asking for rather than avoiding nationalization. He thought that 75% of patients attending eye clinics were quite able to pay for minor medical attention. Mr. Love's intentions were good, but he believed that the consulting clinics would be one step further towards nationalization.

DR. W. OSTERMEYER was very much indebted to Mr. Love for his able presentation of the hospital systems of America and Australia. He had been very much interested to hear and he thought it a point of major importance that the community hospitals were not so general in America as they had been led to suppose. The Americanization of the profession seemed to be proceeding apace. Dr. MacEachern had presented a very flattering report on the Victorian hospital system, yet it was proposed to graft something on to this without full consideration of the consequences.

In America patients usually paid something for their hospital treatment, but this was less usual in Australia. It was very easy to suggest that the public should be educated not to accept medical charity unnecessarily, but this was very difficult of achievement.

He thought that medical men attached to community hospitals would have an undue advantage over the remainder of the profession and thus dissension might arise. Money was absolutely essential, not only for hospital development, but for the furtherance of research and preventive medicine. There were already too many patients attending the out-patient departments of the public hospitals and he thought the number would probably increase. These patients were, he thought, quite well informed as to the fees charged for private treatment.

There was too great a tendency to assume that all treatment should be carried out in a hospital. Many patients did not desire to be sent to hospital and others, for instance those suffering from "nervous complaints," were much better treated in their own homes.

He was not sure how the consulting clinics would function. If all patients were to be completely overhauled and have X ray and other investigations done, the expense would be very great and he would like to know where the money was to come from. He thought it an admirable idea that the reports of special examinations undertaken at the clinics should be sent to the practitioner direct. Once a patient was referred to a hospital he usually returned there for any subsequent treatment and was thus lost to the private practitioner.

He thought it both admirable and practicable that centres for both X ray and bacteriological examination should be established, to which patients could be referred

by and then sent back to the medical practitioners in the vicinity.

DR. J. J. KELLY, coming as he did from a provincial town, was more interested in country than in city hospital problems. The Australian people were afforded good facilities for education and had set up a high standard of living, yet the hospital population had increased out of all proportion to the population of the community. This was due, he thought, to a loss of medical pride on the part of the people and the greater facilities provided in the hospitals for diagnosis and treatment. Commercialism was to some extent necessary in medicine and they must have some definite and reliable method for classifying patients into private, intermediate, near poor and poor. This was admittedly very difficult and patients should be asked to make a statutory declaration or produce their banking account for inspection. In Wangaratta they had been on the verge of a building campaign with the object of having their institution recognized as a base hospital. They had suspended their efforts on hearing that the Charities Board were considering the introduction of an intermediate hospital system. He would like to ask Mr. Love if this were so. As the public hospitals were becoming so perfected and the investigation of the financial position of the patients was so inefficient, unless something further were done, they would be faced with the necessity of building more and more hospitals.

DR. D. M. EMBLETON desired to express his appreciation of Mr. Love's paper. An investigation of the fees paid by patients in public hospitals had shown that only 3% paid more than two pounds per week. It was therefore clear that no great increase in fees from these patients was possible. If the metropolitan public hospitals were unable to prevent the admission of patients and unable to induce them to pay private fees, how could they expect public hospitals in the suburbs to do so?

He thought that the establishment of consulting clinics in the suburbs would result in their becoming out-patient clinics similar to those in connexion with the big public hospitals.

Of the 600,000 people in the industrial suburbs 75% did not have sufficient wealth or income to prevent their being admitted and he thought, therefore, that the very efficient service provided would become very popular. He quoted statistics to show that if the Charities Board provided the number of hospital beds set out in its programme, that it would thereby provide more than enough hospital accommodation for the whole of the industrial population. Charitable and voluntary subscription had been exploited to the full. The people should be cast more on their own resources and money made available by organized contributions from the general mass of the community working independently of Government support. What was wanted was not cheaper service, but a willingness on the part of the people to pay.

A coordinated effort on the part of the profession was absolutely necessary to make the various diagnostic aids more available to the public. If this were not done they must consent to government provision of these services and nationalization.

He thought it important that people should be nursed near their own homes and in the midst of their friends. This might result in the establishment of smaller hospitals, but he thought any added expense would be more than compensated by the saving in tram and train fares.

MR. H. C. COLVILLE said that he would like to refer to the condition of affairs in the out-patient departments of the public hospitals. Mr. Love admitted that they were being abused and had proposed as a remedy the establishment of consulting clinics in the suburbs. He thought it quite possible that these also would be subjected to similar abuse. One of the main reasons why the out-patient departments were overcrowded was that the interrogating clerk was not in a position to know whether the patient's investigation and treatment would be costly or not. The only person who was able to decide this was the medical officer himself. At the Alfred Hospital a sub-committee which had been called to consider this question, had recommended that after a patient had been fully investigated he should, if possible, be referred to an

outside practitioner for further management. He would like to suggest to Mr. Love that this plan be tried in one of the large metropolitan hospitals before the scheme outlined by him was put into operation.

MR. VICTOR HURLEY said that he would like to add his congratulations to Mr. Love on the able paper he had presented. Mr. Love had the best interests of the medical profession at heart and would, he felt sure, carefully consider the effect of any proposed scheme on the profession before putting it into operation. Medical men were quite prepared to treat gratuitously those unable to pay, but the big problem facing it was to insure that those able to pay did so. The facilities in public hospitals were good, but were frequently not so in private and intermediate institutions. It was most difficult to determine which patients were genuinely entitled to treatment in out-patient clinics. In-patients were largely recruited from the out-patient departments and if this difficulty were solved, the rest would be comparatively easy to manage.

Dr. Embleton had pointed out that many people no longer regarded a serious illness as a contingency against which they should provide, and when they applied for treatment at a public hospital did not have sufficient means at the time to pay for private treatment. In the past twenty-five years the number of patients treated both in the in-patient and out-patient departments of the public hospitals in Victoria had increased disproportionately to the general population. At the same time the fees paid by these patients had increased enormously, so that they now formed one of the chief sources of hospital revenue. If those patients attending public hospitals and contributing largely to their revenue were to be weeded out, it must be done on some system of insurance, whereby small annual payments were made into a fund on which the patient could draw in case of illness and thus finance his own private treatment. He saw no insuperable objection to the State undertaking control of this fund. There was no reason why every member of the community should not contribute to such a scheme and the friendly societies who now provided for out-patient treatment only, might organize a similar plan and thus provide in-patient treatment as well for their members. There would, of course, be the difficulty of the individual who would not pay regularly, but there would be many who did. A scheme such as this would have many advantages over national insurance.

With regard to the consulting clinics, he saw no insuperable difficulty in allowing the local practitioner to decide what patients were suitable for treatment. If this were done, he did not think that they would be abused. The medical men in the vicinity should make free use of these clinics and give their patients the full benefit of the diagnostic facilities afforded. Reports of special investigations should be forwarded direct to the practitioner who would then retain rather than lose his patient. It would be a great advantage if in association with the clinics hospitals were established in which all classes of patients could be treated by medical men of their own choosing.

As far as finance was concerned a hospital of this type in order to be efficient must be a fairly large institution of not less than one hundred beds. This would mean a fairly large capital outlay which could be provided by church organizations, municipalities, contributions from the rates or by borrowing. Intermediate hospitals were being conducted successfully and profitably by church organizations at reasonable rates and he saw no objection to similar hospitals being conducted by the friendly societies. Any outside organization should be concerned solely with the business management of such hospitals and the profession would decide on the scale of fees paid by the patients.

He felt assured that the profession was anxious to help in any scheme put forward by the Charities Board, provided it was recognized that patients who were able to pay for their medical attention did so.

DR. ALLEN ROBERTSON asked how was it possible to distinguish the poor from the near poor patient.

DR. J. NEWMAN MORRIS said that he had little to add to what had already been said by previous speakers. The Charities Board had under consideration the hospital accommodation for the whole of the community. The

medical profession viewed with alarm the growing popularity of the public hospitals, yet they must provide adequate hospital accommodation for all classes of the community.

Mr. Love, in reply, said that his paper should be read in conjunction with the report he had furnished to the ministry after his trip abroad. Whatever the outcome of the meeting might be, he felt that good would result from the focusing of a good deal of attention on the problem of the out-patient, which problem the clinic idea was meant to overcome.

In reply to Dr. Rosenberg he said that the existing dispensaries were not very satisfactory and should not be used as a criterion of what the consulting clinics would be. Several speakers seemed to think that the policy of the Charities Board emanated from America. This was not so, as it had been formulated and very largely developed before Dr. MacEachern had visited Australia. With regard to community hospitals, he wished to point out that under the provisions of the *Hospitals and Charities Act* patients were expected to contribute according to their means and he thought this a very wise provision. There was no suggestion that the Government would attempt to dictate to private hospitals or to interfere with the relationship between patient and practitioner. He thought that the stage had been reached when the classification of patients must be done by the medical practitioner, supplemented by an inquiry system. The distinction between private and intermediate patients was solely a matter for the doctor. The separation of the indigent from the near poor should be made by the hospital superintendent and the almoner and if after full investigation the patient was found not to belong to either of these classes, he would be referred back to the general practitioner and informed at the same time that, on again presenting himself to hospital or clinic for investigation, he should bring a letter from his own doctor. Such a patient would, of course, receive no treatment.

In reply to Dr. Spring he pointed out that the Charities Board was a perfectly fair body and investigated its problems from every angle, including consideration of how any proposed alterations would affect the medical profession. If the profession were willing to conserve its own interests, the proposed scheme would help and not hinder it and would materially decrease the number of patients receiving institutional treatment.

In reply to Dr. Embleton he wished to state that the figures for hospital beds put forward by him applied only to acute hospital cases and were not at all applicable to the general hospital needs of the community.

He would like to inform Dr. Kelly that the Charities Board would approve of hospital plans only if submitted as a part of a complete lay-out of the whole block. Conversion to the community type of hospital would thus present no difficulty. With regard to patients who were unable to pay at the time of their illness, but who could pay later, a contract to pay should be entered into and if necessary followed up.

NOMINATIONS AND ELECTIONS.

THE undermentioned has been nominated for election as a member of the New South Wales Branch of the British Medical Association:

Heffernan, Patrick Gabriel, M.B., Ch.M., 1926 (Univ. Sydney), "Bona Vista," Macaulay Road, Stanmore.

Obituary.

DAWSON WILLIAMS.

THROUGHOUT the length and breadth of the British Empire the name of Dawson Williams has commanded respect, admiration and attention for very many years. As a medical journalist he stood in the first rank; he has set a standard that others will have difficulty in maintaining. His influence for good has been immense and it is impossible to measure the effect of this influence on the

welfare of the medical profession not only in the past, but also in the present and in the future.

Dawson Williams was born seventy-three years ago in a small village called Elleskelf, in Yorkshire. His father was a clergyman. From the early days of school life, when he attended the Pocklington Grammar School, he gave promise of unusual intellectual development and unusual efficiency. In due course he entered University College in London and soon passed into the medical school. His course was attended by great achievement. He surpassed his contemporaries as a result of his quiet application and keen understanding. In 1878, at the age of twenty-four, he qualified for registration as a member of the Royal College of Surgeons. In 1879 he obtained the degrees of bachelor of medicine and bachelor of surgery and gained the gold medal in medicine. His was not merely an academic acquisition of knowledge, an ability to pass the examination tests. He thought for himself and challenged many of the doctrines that had been handed down from generation to generation without evident foundation on fact. As soon as he left the medical school he was chosen to fill one of the positions at University College Hospital as house physician. On completion of his year of office, he was appointed assistant in the obstetrical department and later he served as house surgeon in the ophthalmic department. In 1881 he secured the degree of doctor of medicine at the University of London and opposite his name on the list are the words "worthy of the gold medal." With so excellent a start in medical life he took rooms in Harley Street and embarked on the tedious journey of consulting physician. While in the waiting years, he turned his attention to diseases of children and after serving as registrar and pathologist at the Victoria Hospital for Children, he was elected assistant physician at the East London Children's Hospital, Shadwell. In 1885 he was admitted a member of the Royal College of Physicians of London. Ten years later he was elected a Fellow of the College. In due course he became full honorary physician. At one time he held the position of resident clinical assistant at the Brompton Road Hospital for Consumption. It will thus be realized that his versatility in medical matters made its appearance at the very outset of his remarkable career. As a student he was found to have a peculiar aptitude with his pen. His colleagues took advantage of this and he gladly lent himself as medical reporter for his hospital and its students' society. He was a very great reader and his judgement in this regard was of a high order. His artistic tastes in literature were reflected in his own writings and he soon acquired an extraordinary facility in the use of words. In 1886 Ernest Hart, editor of *The British Medical Journal*, needed assistance. Dawson Williams had contributed articles and annotations to the journal during the previous seven years, but he had had no special training in the management of a journal and his knowledge of the technical side of journalism was non-existent. With his friend Charles Louis Taylor he joined the staff of *The British Medical Journal* and during the temporary absence of the editor, these two novices had a somewhat exciting and to the older employees on the staff amusing struggle to keep things moving. Taylor had had a wider experience of outside literary work and had had a better insight into the internal affairs of a great journal. But the inherent genius of the two men soon enabled them to laugh at their initial difficulties and when their chief returned, Ernest Hart found that his recruits were competent and eminently reliable. Hart had many enemies. He was a hard fighter and a brilliant organizer, as well as a man of unusual resource. Williams learned from his chief, but his discrimination and his ready wit compelled him to refuse to follow blindly. He acquired knowledge and experience under Hart's leadership. He was intensely loyal and had an unbounded admiration for the elder man. At the same time he was working side by side with a born journalist, a man of immense power of description, of research, of repartee and of biting sarcasm when the occasion demanded it. For ten years the trio gave of their best to the medical profession; the younger men were compelled to sink to some extent their individuality and their initiative, while the senior man exercised his masterful sway on the destinies of the medical profession. At

that time the British Medical Association was not unanimous in regard to the advisability of granting the editor of the journal unrestricted powers of direction. Dawson Williams still devoted some time during these ten years to his practice as a children's specialist. He wrote an admirable book entitled "On the Medical Diseases of Infancy and Childhood" and contributed many valuable articles to medical journals on the pathology and clinical aspect of children's diseases.

Ernest Hart died more or less suddenly on January 7, 1898. He had held the position of editor of *The British Medical Journal* for thirty years to the great benefit of the Association and the medical profession. The opponents of an autocratic editor pressed for the appointment of an editorial committee and won the day. Dawson Williams was appointed editor and Charles Louis Taylor became assistant editor. It will be remembered that the latter had completed his medical course, but had not proceeded to a degree as he was already engaged by Morell Mackenzie in literary work. Dawson Williams worked for twenty-nine years under the editorial committee of the British Medical Association and succeeded in obtaining his own way by means of his diplomatic behaviour, his earnest solicitude for the welfare of the people and for the prosperity of the British Medical Association, his compelling mastery of the conduct of the journal, his force of character and charming wit, unconcealed by an unsuccessful attempt at sternness, his sound judgement, admirable advice and unyielding persistence when his considered opinion on a matter of importance was at variance with the views of one or other faction of the committee. It is doubtful whether the editorial committee ever realized that Dawson Williams had just as complete a control over *The British Medical Journal* and its policy as Hart had exercised. He infused into that journal an authority that was greater and more irresistible than that it had carried in the days of any of his predecessors. As specialist journals and reviews multiplied and enlarged, he placed an ever diminishing limit to the length of articles accepted for publication in his journal. He conceived in his wisdom that even if long articles at times possessed very great didactic value, it was better for a general practitioner's weekly journal to contain a great variety of material from many authors. In this respect he differed from the great American medical journalist, Morris Fishbein, who has contended that an article should not be measured in thousands of words, but in the relation of its length to its teaching power. He used his own pen and that of his staff to enable others to view professional and scientific matters in a wide perspective. He had the ability to mould opinions and to lead thoughts into sane channels, when the medical profession was torn by conflicting views and intolerant policies and he used it. But he never permitted the utterances in the journal to be at variance with the declared conclusions of the profession. He and Charles Louis Taylor introduced into the journal a very high literary standard and each contributed many interesting and valuable discussions from ancient and modern medical literature. From time to time critical views were expressed at the Representative Meeting that the journal was too scientific for the general practitioner or that it was too little scientific for the intelligent medical reader. But each time after an individual representative had eased his heart by voicing his imaginary grievance and after a short discussion had followed, Dawson Williams was asked to explain one or other point and invariably he received an ovation on rising. It was evident that he had the complete confidence of the great Empire-wide organization whose mouthpiece was in his keeping.

In the year 1908 an enormous strain was placed on those in charge of the journal by the rebuilding of the house of the British Medical Association, 429, Strand, and the consequent temporary removal to borrowed premises in Catherine Street, Covent Gardens. Everything had to be transported to the temporary house and yet the punctual appearance of the journal was not interrupted. The magnitude of the task cannot be measured by anyone who is not familiar with the enormous mass of records, properly ordered and filed, of papers, of books of reference, of correspondence and of printed matter, with the peculiarly antiquated method then obtaining of setting the journal by hand and with the size of the organization,

embracing as it did more than one hundred outside contributors and inside three editors and a correspondingly large staff. In the same year Dawson Williams was the recipient at Sheffield where the annual general meeting and annual Representative Meeting were held, of an honorary degree of doctor of science. Mention should be made of the part that Dawson Williams played in the institution of the *Association Internationale de la Presse Médicale* in 1903. When the proposal was formulated, Dawson Williams recognized that with careful management it would be possible to utilize this instrument to the immense advantage of the best medical journals in England. He and Sir (then Dr.) Squire Sprigge, editor of *The Lancet*, set to work to draft a constitution of a national association of the medical press for Great Britain and they succeeded in tightening the conditions in such a manner that a very strict ethical code would have to be endorsed before membership could be claimed. The result was that when the first meeting of the international association took place at Monaco, Dawson Williams represented an English association with but three members. In later years the editors of the leading medical journals in France appealed to Dawson Williams for advice how to maintain a high standard of ethical principles in medical journals. Williams pointed out that they had admitted any applicant from the first, while in the English association they had demanded evidence of a strict ethical code before admission was granted.

In 1910 not long after the return of the journal to the Strand, Dawson Williams met with a very serious accident while driving in a motor car in Kent. Two cars crashed into each other at cross roads and the car in which Dawson Williams was, overturned; he sustained severe injury to his shoulder and a certain degree of concussion. He lay for a time helpless and in a dazed condition at a small hotel in the country. After a time, he improved, although much anxiety had been felt for some weeks by his medical advisers. Little by little the effects of the head injury passed off, but when he was at last able to get about, his shoulder was stiff and its movement limited. It would seem that he did not recover completely from the effects of this injury. His humour returned and his ability to handle matters with consummate skill and good judgement was not lessened, but he was nervous and found it increasingly difficult to work continuously. From time to time he made a great effort and he succeeded in achieving much. He took a very active and prominent part in the struggle that followed the introduction of the *National Health Insurance Bill*. He saw from the first that if the medical profession took a sane view and if equitable terms could be secured for the panel doctor, the measure would result in a large financial gain for the profession as a whole. He was by nature conservative and was opposed to the measure in principle. Nevertheless he used his influence to some effect in the endeavour to consolidate the profession and to hold the extremists in check.

During the war he rendered very valuable services to the Royal Army Medical Corps and in recognition of these services he was created a Commander of the British Empire in 1920. He received the honour of knighthood in the following year. The annual meeting was held in Newcastle-upon-Tyne in 1921. On this occasion the University conferred on him the degree of Honorary Doctor of Letters. At the annual meeting he received the gold medal for distinguished merit of the British Medical Association for "distinguished service to the Association and to the profession." In 1922 he was given an honorary degree of LL.D. at Glasgow, also on the occasion of the annual meeting of the British Medical Association.

It will be remembered that in 1917 he lost the comradeship, support and assistance of his old friend, Charles Louis Taylor, who had been in ill-health for some time. Taylor had found work to be becoming increasingly difficult, until he was forced to relinquish his position. In 1919 he died. The Council of the Association wisely selected a young man to fill Taylor's place and elected Dr. N. G. Horner to the position in 1917. Last year, in December, when Dawson Williams retired, Dr. Horner was appointed his successor.

His increasing years, the shock sustained by his severe accident and the effect of the death of his colleague and friend of many years would have sufficed to have terminated the active life of an ordinary man. Dawson Williams was intensely interested in the acquisition by the Association of its magnificent premises in Tavistock Square. He obviously set himself the task of continuing in office until the occupation of the new home was completed. His pride and his keen appreciation of the significance of this event helped him to direct the affairs of the journal until the end of last year. But when he released his hold, his energy and his determination failed. That he should have lived so short a time to enjoy a well earned period of leisure is regrettable, but not surprising.

He was a very remarkable man. Kindness and humanity tempered all his actions. He appeared to some strangers as an unapproachable man, but those who knew him intimately found him ever ready to help and to confide. He was a very learned man, a man of great determination and a man of iron will. The British Medical Association has known no greater friend and no better leader.

Correspondence.

TRAVELLING MEDICAL REFEREES FOR INSURANCE COMPANIES.

SIR: I wish to bring to the notice of the members of the British Medical Association the remuneration paid medical referees when travelling with an agent representing an insurance company. In Queensland the salary is £40 per calendar month (I understand it is less in New South Wales). Out of this salary the doctor has to pay his hotel and other incidental expenses, so that he may have, with strict economy, about £4 per week for himself, but perhaps he has a wife and children to provide for besides. It is no holiday trip, as many country hotels provide wretched food and horrible sanitary conditions. There are doctors in Macquarie Street holding lucrative positions with insurance companies and they must know the conditions of their medical officers. The least the British Medical Association can do is to insist on travelling expenses and a fair salary. These societies have millions of money and they should be made to recognize that they must not be allowed to exploit their medical officers. Every honourable member of the British Medical Association who through unfortunate circumstances has been compelled to take these positions, should have the Association behind him to get him a fair remuneration. I trust some good and soon may result from this letter.

Yours, etc.,

"REFEREE."

April 9, 1928.

["Referee" is informed that this matter was considered by the Federal Committee of the British Medical Association in Australia at its meeting in Melbourne on April 4 and 5, 1928. An account of what transpired will be published next week. EDITOR.]

NOTES ON THREE AUTOPSIES.

SIR: In my notes of three autopsies I inadvertently omitted a few words in Case I which may cause perplexity to anyone reading it.

The first sentence should have read: "E.K., a female child, aged one year and nine months, had not been robust since she was scalded and scarred on the right side of the face seven months ago."

Yours, etc.,

ARTHUR PALMER.

The University Club, Sydney.

April 11, 1928.

Naval and Military.

APPOINTMENTS.

THE undermentioned appointments, changes *et cetera* have been promulgated in the *Commonwealth of Australia Gazette*, Numbers 18, 22, 24 and 26, of February 17, March 1, 8 and 15, 1928.

PERMANENT NAVAL FORCES OF THE COMMONWEALTH (SEA-GOING FORCES).

Emergency List.

The following officers are appointed from the Retired List: Surgeon Lieutenants Robert Agnew Eakin, M.B., Ch.B., Clifford Henry, M.B., Ch.M., Guy Austin London, M.B., M.R.C.P., John Besley Gillen, M.B., Ch.B., Ernest Sydney George Killen Vance, M.B., Arthur Neville St. George Handcock Burkitt, M.B., B.Sc., Arthur Robert Hill, M.B., Ch.B., M.C.

CITIZEN NAVAL FORCES OF THE COMMONWEALTH.

Royal Australian Naval Reserve.

Donald Dunbar Coutts is appointed to perform the duties of Sub-District Naval Medical Officer, Williamstown Naval Sub-District, during the absence of Surgeon Lieutenant-Commander (Retired) William Henry Orchard, on leave, dated 1st February, 1928.

AUSTRALIAN MILITARY FORCES.

First Military District.

Australian Army Medical Corps.

To be Captain (provisionally).—Ralph Edmonds Douglas, 23rd February, 1928.

Second Military District.

Australian Army Medical Corps.

Lieutenant-Colonel A. L. Buchanan is brought on the authorized establishment of Lieutenant-Colonels, 1st December, 1927.

To be Major.—Captain (temporary Major) H. Sutton, O.B.E., 8th February, 1928.

The provisional appointments of Captains A. L. Watson, M.C., W. I. T. Hotten and A. J. Cunningham are confirmed.

Captain P. L. K. Addison is transferred to the Australian Army Medical Corps Reserve, 30th January, 1928.

Captain J. Stewart is appointed from the Australian Army Medical Corps Reserve, 24th February, 1928.

Captain M. R. Finlayson is transferred to the Unattached List, 8th February, 1928.

Australian Army Medical Corps Reserve.

Honorary Captain R. T. Michell is retired, 3rd February 1928.

Unattached List.

Major (Honorary Lieutenant-Colonel) L. W. Bond, D.S.O., is transferred to the Australian Army Medical Corps Reserve, 10th February, 1928.

Third Military District.

Australian Army Medical Corps.

The provisional appointment of Captain D. Berman is terminated, 22nd February, 1928.

Lieutenant-Colonel E. W. Gutteridge ceases to be seconded, 30th November, 1927.

Major C. W. Adey is supernumerary to the establishment of Majors with pay and allowances of Captain, 1st December, 1927.

Major J. V. Griffith is transferred to the Australian Army Medical Corps Reserve, 31st January, 1928.

Captain (provisionally) C. H. Fitts and Lieutenant D. Zacharin are brought on the authorized establishment, 1st January, 1928.

To be Lieutenant (provisionally) supernumerary to the establishment pending absorption.—Raymond William Sydney Fox, 1st March, 1928.

Lieutenant-Colonel R. W. Chambers, D.S.O., is transferred to the Australian Army Medical Corps Reserve, 28th February, 1928.

Australian Army Medical Corps Reserve.

To be Honorary Captain.—Francis Stanislaus Loughnan, 17th February, 1928.

Lieutenant-Colonel J. R. Webb and Captain J. H. McGee are placed upon the Retired List with permission to retain their ranks and wear the prescribed uniform, 15th March, 1928, and 4th March, 1928, respectively.

Unattached List.

Major R. A. R. Wallace is transferred to the Australian Army Medical Corps Reserve, 1st March, 1928.

Fourth Military District.

Australian Army Medical Corps.

To be Captain (provisionally) supernumerary to the establishment pending absorption.—Douglas Munro Salter, 4th January, 1928.

Captain (provisionally) F. R. Hone is brought on the authorized establishment, 1st January, 1928.

The provisional appointment of Captain J. E. Porter, M.M., is terminated, 31st December, 1927.

To be Captain (provisionally).—John Ellison Porter, M.M., 1st January, 1928.

Fifth Military District.

Australian Army Medical Corps.

To be Captain (provisionally).—Lancelot Miller Corbet, 17th January, 1928.

To be Captain (Provisionally).—Cecil Wentworth Harris, 20th January, 1928.

Captain (provisionally) H. M. Burns is brought on the authorized establishment, 24th January, 1928.

The provisional appointment of Captain H. L. Johnston is terminated, 27th January, 1928.

Honorary Captain H. L. Johnston is re-appointed from the Australian Army Medical Corps Reserve and to be Captain (provisionally), 28th January, 1928.

Sixth Military District.

Australian Army Medical Corps.

Lieutenant-Colonel W. L. Crowther, D.S.O., is brought on the authorized establishment of Lieutenant-Colonels, 1st October, 1927.

Post-Graduate Work.

A COURSE IN RADIOTHERAPY.

THE CANCER RESEARCH COMMITTEE of the University of Sydney announces that the following arrangements have been made for the proposed post-graduate course in radium and X ray therapy of which a preliminary announcement was made in last week's issue.

The course will comprise four series of lectures and demonstrations:

1. Twelve lectures on the physics of X rays and radium by Professor O. U. Vonwiller.

2. Ten demonstrations by Dr. Arthur Burrows on the clinical use of radium.

3. A course of four of five lectures and demonstrations on the principles of radiation therapy by Dr. J. G. Stephens, Radiotherapist to the Cancer Research Committee.

4. A course of four of five lectures and demonstrations on the practice of radiation therapy by Dr. E. H. Molesworth.

Dr. Burrows will announce shortly the full details of his proposed demonstrations.

The present intention is that the course of physics lectures by Professor Vonwiller shall commence on April 30, 1928. If many applications are received from practitioners in other States of Australia, special endeavours will be made to shorten the time occupied in the course as far as possible. Early application by practitioners intending to take advantage of this scheme is therefore essential. The fee for the entire course will be twelve guineas.

University Intelligence.

THE UNIVERSITY OF SYDNEY.

A MEETING of the Senate of the University of Sydney was held on April 2, 1928.

The following degrees were conferred *in absentia*:

Bachelor of Medicine and Bachelor of Surgery (M.B., B.S.): Thomas Roy Biggs, Alfred Conrad Blumer, Noel Francis George, Stanley George Stevens, Fred Callile Yarad.

Bachelor of Medicine (M.B.): Angela Mary Ross, Peter Roylance Delamothe.

Master of Surgery (Ch.M.): Wilfred Royle Dive.

The following appointments were approved:

Dr. C. J. M. Walters as Lecturer in Materia Medica and Pharmacy in the School of Veterinary Science.

Miss M. L. Garde, B.Sc., as Lecturer in Histology in the Department of Anatomy.

Dr. V. M. Coppleson as Lecturer in Surgical Anatomy and Demonstrator in Anatomy.

Dr. R. E. Nowland, Dr. L. J. Shortland and Dr. N. Ross Smith as Demonstrators in Anatomy.

Dr. E. Fisher, Dr. M. H. Thomas, Dr. R. P. Dinley, Dr. R. V. Graham, Dr. G. A. Hardwicke, Dr. F. E. Stayner and Dr. M. P. Susman as Honorary Demonstrators in Anatomy.

Miss H. Hunter as Recorder and Librarian in the Department of Anatomy.

Mrs. T. G. B. Osborn as Demonstrator in the Department of Botany.

Dr. E. H. Stokes as Tutor in Medicine and Dr. J. G. Hunter as Tutor in Anæsthetics on the staff of the Sydney Hospital during the absence of Dr. W. Evans.

Dr. O. A. Diethelm as Lecturer in Clinical Medicine, Dr. R. J. Taylor as Tutor in Clinical Medicine, Dr. B. T. Edye as Lecturer in Clinical Surgery and Dr. V. M. Coppleson as Tutor in Clinical Surgery on the staff of Saint Vincent's Hospital.

The Honourable Sir W. P. Cullen, K.C.M.G., was unanimously reelected as Chancellor of the University for the ensuing three years.

Sir Mungo MacCallum, K.C.M.G., was unanimously elected as Deputy Chancellor for the current year.

Science Research Scholarships, tenable for one year, were awarded to the following: Miss Eileen Durrell, B.Sc. (Physiology), Miss Daphne L. Goulston, B.Sc. (Physiology), Mr. C. W. M. Hart (Anthropology), Mr. H. W. Hogbin, B.A. (Anthropology), Mr. K. L. Lauder, B.Sc. (Chemistry), Mr. A. A. Luciano (Organic Chemistry), Mr. I. V. Newman, B.Sc. (Botany), and Miss Doris A. Selby (Zoology).

The James King of Irrawang Travelling Scholarship was awarded to Mr. J. D. McGee, B.Sc. Mr. McGee graduated in 1927 with First Class Honours in Mathematics and in Physics and has qualified for the M.Sc. degree with the University Medal in Physics. The Senate decided also to nominate Mr. McGee for an 1851 Exhibition Science Scholarship, under which, if granted, he proposes to carry on research work in physics in the Cavendish Research Laboratory at Cambridge University. In the event of Mr. McGee gaining a Science Research Scholarship, the James

King of Irrawang Scholarship will revert to Mr. A. D. Hope. Mr. Hope is a graduand in the Faculty of Arts, having been awarded First Class Honours and the University Medal in both English and Philosophy.

Proceedings of the Australian Medical Boards.

TASMANIA.

THE undermentioned have been registered under the provisions of *The Medical Act, 1918*, of Tasmania, as a duly qualified medical practitioner:

Franklin, Samuel de Vere, M.B., Ch.M., 1921 (Univ. Sydney), Latrobe.

QUEENSLAND.

THE undermentioned have been registered under the provisions of *The Medical Act of 1925* of Queensland as duly qualified medical practitioners:

Armstrong, Allan Cameron, M.B., Ch.M., 1926 (Univ. Sydney), Camooweal.

Brennand, Henry John Wolverton, M.B., Ch.M., 1899, M.D., 1908 (Univ. Sydney), Rockhampton.

Geaney, Norman, M.B., Ch.M., 1926 (Univ. Sydney), Babinda.

Green, Alan Kenneth, M.B., Ch.M., 1926 (Univ. Sydney), Australian Institute of Tropical Medicine, Townsville.

Little, Harry Bennett, M.B., Ch.M., 1926 (Univ. Sydney), Jundah.

Love, Harold Russell, M.B., B.S., 1926 (Univ. Melbourne), Brisbane.

Pitt, Alan Turner Paul, M.B., B.S., 1926 (Univ. Melbourne), Brisbane.

Ryan, Edward Joseph, M.B., 1926 (Univ. Sydney), Kuridala.

Restorations to the Register:

Brown, Arthur Edward Newbury, L.R.C.P. & S., 1884 (Edinburgh), Helidon.

Feather, Walter Watson, M.B., Ch.M., 1919 (Univ. Sydney), Roma.

McKillop, Martin Joseph, M.B., Ch.M., 1921 (Univ. Sydney), Brisbane.

Paul, George William Frederick, M.R.C.S. (England), L.R.C.P. (London), 1886, M.D., 1886 (Univ. Brussels), Brisbane.

Books Received.

EPILEPSY, COMPARATIVE PATHOGENESIS, SYMPTOMS, TREATMENT, by L. J. J. Muskens, M.D.; Foreword by Sir Charles S. Sherrington, O.M., G.B.E., M.D., D.Sc. (Cambridge), F.R.C.P., F.R.S.; 1928. London: Baillière, Tindall and Cox. Royal 8vo., pp. 449, with illustrations. Price: 27s. 6d. net.

THE SIMPLE GOITRES, by Robert McCarrison, C.I.E., M.D., D.Sc., LL.D., F.R.C.P.; 1928. London: Baillière, Tindall and Cox. Crown 4to., pp. 116, with illustrations. Price: 10s. 6d. net.

TREATMENT OF DISEASE IN INFANTS AND CHILDREN, by Hans Kleinschmidt, M.D.; Authorized Translation of the Fifth German Edition, with Additions by Harry M. Greenwood, M.D.; 1928. Philadelphia: P. Blakiston's Son and Company. Demy 8vo., pp. 359. Price: \$5.00 net.

HANDBOOK ON DIET, by Eugene E. Marcovici, M.D.; 1928. Philadelphia: F. A. Davis Company. Royal 8vo., pp. 330. Price: \$3.50 net.

DISEASES OF THE INTESTINES INCLUDING THE LIVER, GALL-BLADDER, PANCREAS AND LOWER ALIMENTARY TRACT, by Anthony Bassler, M.D., F.A.C.P.; Third Edition, Revised and Enlarged; 1928. Philadelphia: F. A. Davis Company. Royal 8vo., pp. 925, with illustrations. Price: \$9.00 net.

Diary for the Month.

APRIL 24.—New South Wales Branch, B.M.A.: Medical Politics Committee.
 APRIL 25.—Victorian Branch, B.M.A.: Council.
 APRIL 26.—New South Wales Branch, B.M.A.: Branch.
 APRIL 26.—South Australian Branch, B.M.A.: Branch.
 APRIL 27.—Queensland Branch, B.M.A.: Council.
 MAY 1.—Tasmanian Branch, B.M.A.: Council.
 MAY 2.—Victorian Branch, B.M.A.: Branch.
 MAY 2.—Western Australian Branch, B.M.A.: Council.
 MAY 3.—South Australian Branch, B.M.A.: Council.
 MAY 4.—Queensland Branch, B.M.A.: Branch.
 MAY 8.—Tasmanian Branch, B.M.A.: Branch.
 MAY 8.—New South Wales Branch, B.M.A.: Ethics Committee.
 MAY 10.—Victorian Branch, B.M.A.: Council.
 MAY 10.—New South Wales Branch, B.M.A.: Clinical Meeting.
 MAY 11.—Queensland Branch, B.M.A.: Council.

Medical Appointments.

Dr. Robert Francis Paterson has been appointed a Medical Officer, Medical Branch, Department of Education, Sydney.

Dr. Ian Donald McInnes (B.M.A.) has been appointed Public Vaccinator at Mortlake, Victoria.

Dr. Alick Murray Will (B.M.A.) has been appointed a Deputy Member of the Boards of Official Visitors to the Mental Hospitals at Callan Park, Gladesville and Mt. St. Margaret, Ryde.

Dr. Mabel Irene Cousan Bray (B.M.A.) has been appointed Government Medical Officer at Cassilis, New South Wales.

Dr. N. Ross Smith (B.M.A.) has been appointed Honorary Demonstrator of Anatomy, University of Sydney.

Dr. N. Ross Smith (B.M.A.) has been appointed Honorary Orthopaedic Surgeon to the Balmain and St. George District Hospitals, Sydney.

Dr. F. S. Hone (B.M.A.), Dr. William Ray (B.M.A.), Sir Joseph Cooke Verco (B.M.A.), Dr. Arthur Murray Cudmore (B.M.A.), Dr. Constantine T. Champion de Crespigny (B.M.A.) and Dr. Henry Simpson Newland (B.M.A.) have been appointed Members of the Advisory Committee under the provisions of the *Hospitals Act Amendment Act, 1921*, of South Australia.

Dr. E. Murray Will (B.M.A.) has been appointed Honorary Dermatologist at the Coast Hospital, Sydney.

Dr. Gilbert Elliott Aitken (B.M.A.) and Dr. John Francis Gaha (B.M.A.) have been appointed Members of the Mental Deficiency Board of Tasmania.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser," page xvi.

COMMONWEALTH OF AUSTRALIA, REPATRIATION COMMISSION,
 NEW SOUTH WALES BRANCH: Junior Resident Medical Officer.

KYNUNA DISTRICT HOSPITAL, QUEENSLAND: Lady Doctor.

MANLY COTTAGE HOSPITAL, NEW SOUTH WALES: Resident Medical Officer.

ROYAL NORTH SHORE HOSPITAL OF SYDNEY: Honorary Vacancies.

ROYAL PRINCE ALFRED HOSPITAL, SYDNEY, NEW SOUTH WALES: Honorary Vacancies.

THE PUBLIC SERVICE BOARD, NEW SOUTH WALES: Medical Officer.

WESTERN SUBURBS HOSPITAL, CROYDON, NEW SOUTH WALES: Medical Superintendent.

Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 30 - 34, Elizabeth Street, Sydney.	Australian Natives' Association. Ashfield and District Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham Dispensary. Manchester United Oddfellows' Medical Institute, Elizabeth Street, Sydney. Marrickville United Friendly Societies' Dispensary. North Sydney United Friendly Societies. People's Prudential Benefit Society. Phoenix Mutual Provident Society.
VICTORIAN: Honorary Secretary, Medical Society Hall, East Melbourne.	All Institutes or Medical Dispensaries. Australian Prudential Association Proprietary, Limited. Mutual National Provident Club. National Provident Association. Hospital or other appointments outside Victoria.
QUEENSLAND: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane.	Members accepting appointments as medical officers of country hospitals in Queensland are advised to submit a copy of their agreement to the Council before signing. Brisbane United Friendly Society Institute. Stannary Hills Hospital.
SOUTH AUSTRALIAN: Secretary, 207, North Terrace, Adelaide.	All Contract Practice Appointments in South Australia. Booleroo Centre Medical Club.
WESTERN AUSTRALIAN: Honorary Secretary, 65, Saint George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.
NEW ZEALAND (WELLINGTON DIVISION): Honorary Secretary, Wellington.	Friendly Society Lodges, Wellington, New Zealand.

Medical practitioners are requested not to apply for appointments to positions at the Hobart General Hospital, Tasmania, without first having communicated with the Editor of THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to "The Editor," THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, Sydney. (Telephones: MW 2651-2.)

SUBSCRIPTION RATES.—Medical students and others not receiving THE MEDICAL JOURNAL OF AUSTRALIA in virtue of membership of the Branches of the British Medical Association in the Commonwealth can become subscribers to the journal by applying to the Manager or through the usual agents and book-sellers. Subscriptions can commence at the beginning of any quarter and are renewable on December 31. The rates are £2 for Australia and £2 5s. abroad per annum payable in advance.